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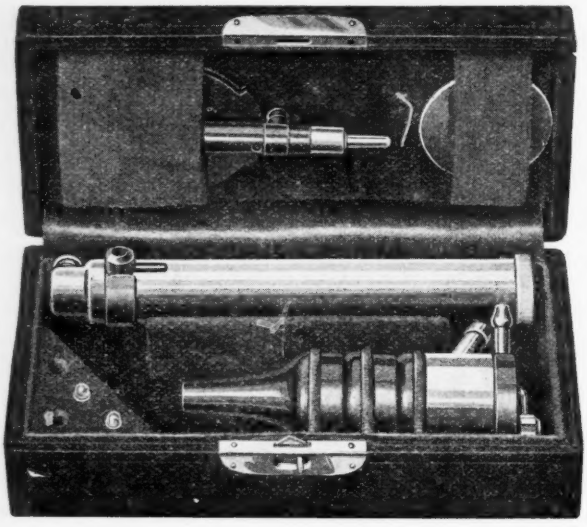

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VOLUME 200 JUNE 13, 1929 NUMBER 24

The Massachusetts Medical Society

THE ANNUAL DISCOURSE*

THE INTERDEPENDENCE OF TROPICAL MEDICINE AND GENERAL MEDICINE

BY GEORGE CHEEVER SHATTUCK, M.D.¶

INTRODUCTION

Mr. President and Fellows of the Massachusetts Medical Society:

WHEN you so kindly asked me to address you on this occasion I assumed that you would wish to hear about the subject which has absorbed most of my attention during the past seven years, namely, tropical medicine. Supposing that you might like to know something of the background of this address I venture to say that my first contact with the subject was made twenty years ago on a trip to the Far East. Later, in 1915, I saw much typhus fever, malaria, relapsing fever, and papataci fever in Serbia.† In 1921 I joined the Department of Tropical Medicine at Harvard, started a Service for Tropical Diseases at the Boston City Hospital in the same year, and since then have devoted myself to tropical medicine. During this period a year was spent in the Amazon Basin,‡ and another in Equatorial Africa.§ My work has been, chiefly, of a clinical nature.

DEFINITION

What is meant by "tropical diseases"? The answer will depend upon the approach to the question. A colleague, for example, asked whether I considered that all cases of rare and interesting disease should be regarded as "tropical." I replied that his interpretation suited me perfectly but that minds less liberal than his preferred to give the term a more restricted meaning. When perusing the yearly index of the "Tropical Diseases Bulletin" (which is published by the Bureau of Hygiene and Tropical Diseases in London) the eye is arrested by such familiar names as amoebiasis, beri-beri, black-water fever, cholera, dysentery, plague and leprosy. Among them are other names which may appear new or strange, such as oroya fever, sodoku, or tsutsugamushi disease. It may be a surprise to find nearly two pages of references to rabies, and a few, respectively, to pneumonia, small-pox, tuberculosis, and typhus fever.

As interpreted by the "Bulletin" the term "tropical disease" is inclusive. It covers diseases of limited but not tropical distribution such as Rocky Mountain fever, as well as maladies like smallpox, typhus fever and rabies which modern hygiene knows how to banish and which, in consequence, are more likely to be found today in backward communities in the tropics than in highly civilized parts of the temperate zone. Rabies, however, is too common in Massachusetts to be regarded here as a "tropical disease."

Pneumonia and tuberculosis are not tropical diseases, but, they have far more serious consequences in the tropics than is often realized and they present special problems there which will be discussed later.

No one in Massachusetts should question the propriety of rating malaria as a tropical disease, for although it is common in subtropical latitudes and develops occasionally in the temperate zone, it is the greatest scourge of the tropics. For us here, hookworm falls into the list naturally enough, but in some of the Southern States both malaria and hookworm are commonly treated in the course of general practice. This means that the practitioner of our Southern States lives in an intermediate zone where knowledge of some of the tropical diseases is essential for him, but the practitioner of Massachusetts is not likely to see enough cases of any of the so-called tropical diseases to justify the expenditure of much of his time in keeping informed about them.

On the other hand, he who would qualify as an authority on tropical diseases must take a world-wide view of his subject and must have had clinical experience in various types of trop-

*Delivered before the Massachusetts Medical Society, June 12, 1929.

†"Typhus Fever with Particular Reference to the Serbian Epidemic." By Strong, Shattuck, et al—Harvard University Press, Cambridge, 1920.

‡"Medical Report of the Hamilton Rice Seventh Expedition to the Amazon." By Strong, Shattuck, et al—Harvard University Press, Cambridge, 1926.

§A Report of the work is being prepared for publication.

¶For record and address of author see "This Week's Issue," page 1261.

ical environment. But he should not lose touch with general medicine, for many of the ordinary diseases of the temperate zone are common in the tropics as well.

The practitioner permanently settled in the tropics does not need to cover so wide a field, because there is no place in the world where all tropical diseases exist. Before undertaking such work the prospective practitioner will do well, at least, to gain laboratory experience in the diagnosis of the important diseases likely to be encountered; and he may be able to save much time by learning the language of the country before going there.

THE TREE OF TROPICAL MEDICINE

The tree of tropical medicine draws essential nutriment from the roots which vitalize medicine in general but, thus far, it has drawn from these roots in different proportions and has developed a greater number of main branches. The large branches of general medicine are physiology, chemistry, pathology and bacteriology. Tropical medicine has another main branch; namely, biology represented by helminthology, protozoölogy, and entomology, all of which are of lesser importance to general medicine. In consequence of this fact, a school or department devoted to tropical medicine should be prepared to teach these biological subjects and should, at least, have the co-öperation of teachers of the main branches which are alike in the two trees. If given the biological nutriment which it requires, the tree of tropical medicine should flourish best in the soil of a well-rounded medical center. Good development of the tree presupposes, of course, adaptable organization and a generous spirit of co-öperation between departments.

Given these requisites, many investigations in the field of tropical medicine can be prosecuted more advantageously in the temperate zone than would be possible where the climate is less favorable to sustained work. For a like reason, institutions of learning in the tropics cannot be expected to compete successfully in all things with their sisters who are more fortunately situated geographically. Northern institutions, whether in Hamburg, London, Liverpool or Boston, may be excellent bases from which to send to the tropics expeditions of selected personnel equipped for specific purposes. It seems to me that the institutions within the tropics should have a different aim, namely to provide clinical instruction, to study carefully the group of diseases at hand and to solve such medical problems as can best be studied in a tropical environment. Also, there should be contact and co-öperation between the institutions within the tropics and those in the temperate zone.

THE EVOLUTION OF TROPICAL MEDICINE

Before attempting to forecast the future development of the tree of tropical medicine let us consider briefly the stages through which it has passed since the seed was planted by Bilharz in 1853, when he attributed to the hookworm the prevailing anemia of Egypt. In 1880 Laveran discovered the protozoön parasite of malaria. Fifteen years later (in 1895) Ross, working with the malaria of birds, demonstrated its transmission by the mosquito and, in 1901, Reed and his associates proved that yellow fever was similarly transmitted. The discoveries of Ross and of Reed were foreshadowed by Theobald Smith's elucidation of the nature of "Texas fever" in cattle, and by his classical experiments which proved beyond doubt that this disease was transmitted by a species of tick.

Thus it is apparent that helminthology, protozoölogy, and entomology were hand-maidens of tropical medicine from the first and that diseases of cattle and of birds became beacons to light the way. Subsequent discoveries served but to confirm the importance of biological investigations and to emphasize the close analogy between the parasitic diseases of animals and those of man.

Meanwhile, pathology helped at every step and bacteriology played its essential part which was exemplified by Hansen's discovery of the lepra bacillus in 1874, Koch's finding of the cholera vibrio in 1883, Kitasato and Yersin's demonstration of the plague bacillus in 1894, and Castellani's discovery in 1905 of the Spironema of yaws. But plague is transmitted by the rat flea and is, primarily, a disease of rats so that entomology and animal medicine again took a share of the honors.

Chemistry gave us control of scurvy and of beri-beri and became pre-ëminent in therapeutics. By providing remedies such as the alkaloids of cinchona, and of ipecac, purified and improved antimonials, arsphenamines, tryparsamide, and valuable vermifuges for hookworm, it raised the treatment of many tropical diseases to a high plane.

Speaking broadly, many of the foundation stones of tropical medicine, like those of general medicine, have been shaped by men who were primarily clinicians but, in recent years, the foundation of the subject has been vastly strengthened and the structure greatly extended by the laboratory specialist.

Dependence is placed more and more upon him for the solution of intricate problems requiring time-consuming investigations which the calling of the clinician debars him from undertaking. On the other hand, the task of the clinician as correlator and interpreter in terms of diagnosis and of therapy becomes ever more difficult and exacting. As the basic sciences aid and complement each other, so the laboratory and the clinic march together.

Most of the pioneers of the past worked with scanty equipment, often provided by themselves and, generally, they worked alone. Those of the present are vastly better equipped, and they are

developing team work. Although some individuals may still do their best work in isolation, interdependence is desirable and is increasing.

THE BATTLE

The northern races, active in mind and limb, see in the tropics a challenge to their strength, rich economic prizes to win, humanitarian ends to serve, and seductive problems which pique their scientific curiosity. But the battle with tropical disease was joined long before the physician had invented his heavy artillery and, in consequence, defeats used to be as numerous as victories. Witness, for example, the ravages of disease among the Spanish conquistadors in the New World, the invasion of London by the plague, the loss to France of Haiti through the devastation by disease of Napoleon's army in the latter country, the epidemics of yellow fever formerly common along our own Atlantic seaboard, the failure of the French to build the Panama Canal, and the repeated disasters along the line of the Madeira-Marmore Railway which links the Amazon to Bolivia. It is said, and probably with essential truth, that every tie in this railway represents a corpse. These misfortunes were due to ignorance. Had modern medical artillery been available the invasions of disease would not have occurred and the battles with disease in the tropics could have been won with little loss of life.

PRACTICAL PROBLEMS

Was the power to prevent disease applied to the best advantage in the tropics soon after the necessary knowledge became available, and is it so applied today? Assuredly not! The means of preventing malaria was known for a long time before those in authority could be induced to make much use of it, and, even after Gorgas had shown the way, many refused to learn this lesson. How many people died prematurely at their posts in consequence of this neglect will never be known, but the number must be very large and the end is not yet. What has been said of malaria is true in lesser degree of dysentery and of some other tropical maladies, although the death toll of malaria in the aggregate still overshadows that of any other tropical disease.

The most important causes of the preventable loss of life which continues even now in the tropics are two: namely, persisting ignorance and economic considerations. For the persisting ignorance we physicians must shoulder a share of the blame because we ourselves sometimes are too slow to see the light. Similarly, the layman whether captain of industry or field lieutenant may be blind to his own interest because his mind has not been trained to evaluate medical data. But sometimes the organizer knows well what might be done to conserve health and yet objects that the cost is too high. When the president of a newly organized company gives one to understand that it is cheaper to "break" subordinates than to prevent dysentery among them, the physician can reply that one, at least, of the most prosperous corporations doing business in the tropics considers that a well developed medical service is not only a necessity but that it increases dividends. I shall not discuss the moral side of this issue but will venture to remark that, when leaders of industry are faced with health problems, they should be very sure of their ground before deciding that neglect of employees is cheaper than reasonable expenditure for conservation of their health and of their lives. When health measures have been tried, found too costly in practice and abandoned on this account, one is at liberty to doubt whether the health measures were wisely planned and well conducted.

Sanitation of communities is apt to be more difficult in the tropics than in the temperate zone. Not only are most of the diseases of temperate climates found also in the tropics but there are other diseases to be combatted as well. Extreme ignorance about the causes of disease is more widespread, poverty and shiftlessness are much more common, admixture of races, unsanitary religious practices, superstition stronger than law, and primitive habitations may present additional obstacles. For example, it is no easy matter to deal with plague where there are acres of huts built only of palm leaves and bamboo poles. Moreover, a tropical climate seldom breeds energetic individuals, and heat, as a rule, damps the ardor of the alien, even though he may successfully evade disease.

The cost of sanitation must be cut according to the cloth. This is particularly true of primitive communities where there is little taxable property. Local industry, agriculture, or natural resources developing under the stimulus of adequate capital may supply the "sinews of war" to the government, or some large corporation may be obliged, in its own interest, to assume financial responsibility for community sanitation. Fortunately, there is also a "Fairy Godmother" disguised as the International Health Board which often lends a helping hand.

For the development of resources three things are necessary: capital, enterprising management, and labor. Capital is available in ever-increasing quantities; enterprising management develops with the demand; but the available supply of labor becomes, relatively, less and less.

Clearly, then, health measures for the native population of the tropics are of importance to the foreign investor as well as to the governments which are directly responsible for the welfare of the people of the tropics. This viewpoint is expressed by thinking persons in the Belgian Congo, and the Government there is making strenuous efforts to improve the health of its native tribes. Similarly, the economic future of Liberia and of Amazonia will be conditioned, to a great extent, by availability of labor. These instances are drawn from personal observation

but, doubtless, the same situation exists in many other tropical countries. In India, on the other hand, there is likely to be a surplus of labor for a long time to come.

RESPIRATORY DISEASES

The question of labor shortage leads us to consider the significance in the tropics of pneumonia and of other respiratory diseases, including tuberculosis.

The medical reports published by the United Fruit Company, which employs large numbers of native laborers in the West Indies and in Central America, show a high incidence of respiratory diseases and a high mortality from pneumonia. This group of diseases is of importance also in India, in Liberia, in the Belgian Congo and, probably, among the native Indians in Northern Brazil.

Further examination of the reports of the Fruit Company for the years 1924 to 1926 (inclusive) shows that, among employees of the Company, the average yearly number of deaths during these three years was 78 for malaria against 200.6 from pneumonia. In other words, there were more than 2.5 times as many deaths from pneumonia as from malaria among the employees.

When the average death-rate in the Fruit Company per 1,000 cases of malaria admitted to hospitals in the years 1915 to 1925 (inclusive) is compared with the rate for pneumonia during the same period, a still more remarkable contrast is revealed. The mortality rate for malaria in hospital is only 11.76 per 1,000 against 400.6 per 1,000 for pneumonia. That is to say, that nearly 99 per cent. of all the malaria cases sent to hospitals to recover, but that 40 per cent. of the pneumonias are fatal. Analysis of the figures shows immediately that it is the native laborers of Africa descent and not the white man who particularly needs protection from pneumonia in the West Indies and in Central America.

The Negro race in the United States is notoriously susceptible to tuberculosis, and, doubtless, comparative poverty and lack of hygiene are contributing factors.

In Liberia pulmonary tuberculosis is believed to be common at Monrovia; but, in the interior, where the native population has had little contact or communication, as yet, with the inhabitants of the coast, pulmonary tuberculosis is rare, if indeed it exists there at all.* In the Belgian Congo I was informed on good authority that tuberculosis is increasing rapidly among the Negroes, and that the extent of it in any locality is proportional to the frequency of contact with whites. In view of the primitive habits of the Negro in Africa and the hot, moist climate of Liberia and of the Congo Basin, it seems likely that tuberculosis in the future may become a scourge of major importance in these countries.

*Report of the Harvard African Expedition, now in process of preparation.

EFFECTS OF INCREASED COMMUNICATION

Numberless instances could be cited of the importation of disease from one country to another and the consequences have often been most serious. According to Surgeon General Stitt,† W. H. S. Jones, who has studied this question, attributes largely to malaria the collapse of the once magnificent civilization of Ancient Greece. It has been suggested, too, that at the time of the Spanish conquest, yellow fever may have been imported with slaves from Africa and that this disease might have been an essential factor in causing the complete downfall of the civilization of the native Maya race in Yucatan and Guatemala, where today their sculptured temples are crumbling in the forests.

Stitt is also of the opinion that aestivo-autumnal malaria, hookworm disease, filariasis, and various other maladies were brought to America from Africa with the slaves. Be that as it may, subtertian malaria and hookworm have had serious consequences in some of our Southern States, and an active focus of filariasis persists at Charleston, South Carolina.

Improved facilities for travel in Africa, with the mingling of tribes and races which results, favor the spread of tuberculosis as mentioned above, and quite recently yellow fever has been discovered along routes of travel in the interior of West Africa where this disease is not believed to have existed formerly. Moreover, the relapsing fever of the Eastern Congo, which is transmitted by a species of tick, is said to be spreading similarly into new regions, and the notorious epidemics of African trypanosomiasis which decimated the native population in parts of Central Africa some years ago have been attributed to the appearance of the disease in territory where it had not existed formerly. It is apparent, therefore, that health protection for the native in Africa is becoming more and more necessary, not only for his own sake but also for the future development of Africa.

It is obvious that communication between the tropics and temperate zones will increase inevitably and rapidly. Already, we all know persons who have visited the tropics on business or pleasure and who have returned in ill health. Individuals suffering from sprue or from other tropical diseases wander in increasing numbers about the country not knowing where to turn for proper treatment, even when they are able themselves to give the physician the correct diagnosis. More physicians of special training are needed to take care of such cases.

In the tropics are still found great storehouses of raw materials which are vital to industry in the northern hemisphere, vast territories awaiting agricultural development, rich mineral

†U. S. Naval Med. Bull., Vol. xxvi, No. 4, p. 801, Oct., 1928.

deposits to be exploited, and large reserves of labor.

Enough, I think, has now been said to emphasize the urgency of some of the medical probems which must be faced in the tropics; the tremendous medical contribution toward economic conquest of the tropics has been pointed out, and the growth of knowledge in tropical medicine has been outlined. Let us glance then at some of the questions which may occupy the future student of tropical medicine, and let us inquire also whether there may not be new ways in which old problems might be approached with the prospect of profitable results.

UNSOLVED PROBLEMS

The effects of tropical sunlight upon man have been studied to some extent but much more knowledge of them is needed. Is the sun of India and of Africa, for example, really more dangerous to man than that of South America or of the Philippine Islands, or is the supposed greater danger of the former merely a superstition? How much of the headache and exhaustion following prolonged exposure to intense sunlight is caused by deleterious rays which might penetrate headgear or clothing, and how much is due to overheating of the head or of the body? A good deal of important new information upon the effects of heat and humidity upon the human body is now being gained by the industrial hygienists*, and in this field the Department of Industrial Hygiene of Harvard has made important contributions.

The control of amoebic dysentery will not have a satisfactory basis until we can distinguish with greater certainty the pathogenic from the non-pathogenic amoebae, and until we have learned whether or not there are free-living amoebae which are or which may become pathogenic.

The broad field of immunity in relation to tropical diseases has hardly been touched. What, for example, is the cause of the immunity of species, of races, and of individuals to infestation by a given parasite? These questions relate to insects, to animals, and to man himself.

Comparative studies of basal metabolism in different races of man have been made under the auspices of the Carnegie Foundation. The results differ sufficiently to indicate that the subject requires further study and that important information may be obtained thereby.

The Rockefeller Foundation is working at problems related to the control of hookworm disease, of malaria, and of yellow fever.

Moreover, little has been done, as yet, to control filariasis, and we have no hopeful treatment for this malady. The therapeusis of leprosy, too, in spite of important gains, leaves much to be desired; and black-water fever is dreaded nearly as much as formerly. These are but a few of the important problems which present themselves.

Although the older methods of investigation have been by no means exhausted, the time is ripe, I believe, for an attack upon tropical diseases by employing tactics which have been relatively little used on this front. I refer to the newer methods of the biochemist, the immunologist, and the physiologist, and to the study of disordered function, when not easily explainable by the pathologist. The physicist, also, might perhaps contribute more information than heretofore about light, and possibly about other kinds of emanations as well.

Further investigation may not only revolutionize present conceptions of many of the tropical diseases, but the information gained may have vast importance in relation to the habitability of the tropics for northern races. Broader knowledge might greatly facilitate the commercial development of tropical resources, the economic value of which is already enormous. The value of these resources increases fast but who can estimate their ultimate significance? Striking figures showing a rapid increase in our commerce with the tropics can be found in Siegfrieds's book, "America Comes of Age."

MEDICAL OPPORTUNITIES

Those interested financially in obtaining raw materials from the tropics or in promoting development of tropical resources are playing a game in which the stakes are of great economic value. They can afford to pay well for that which is likely to promote the success of their enterprises. Not only should they look with favor upon research which is designed to throw new light upon control or treatment of diseases of the tropics, but they should also subscribe liberally.

Unfortunately, the economic interests, which have profited tremendously in the past by knowledge already gained, which now so profit and which will so profit in the future seldom feel impelled to give generously to medical research in tropical disease. The debt will not be acknowledged and the support will not be secured until we physicians succeed in convincing the business men who are interested in tropical development that it is their duty to support research in tropical medicine, and that the finding of such research may be greatly to their advantage in the future. Meanwhile, in a country which is prospering as no country has ever prospered before, we find that the physician who might devote himself to this important field of study is likely to turn aside from it because of the uncertainty of obtaining the requisite financial aid.

Opportunity for work in tropical disease is provided for selected men by the Army, the Navy, and the Public Health Service, private practice in our tropical dependencies supports a

*Jour. of Indust. Hyge., Vol. 10, No. 10, Dec., 1928.

few more physicians, small salaries and hospital facilities are offered by some American companies which are large employers of labor in the tropics, the International Health Board has a Staff devoted to work in the tropics, and the medical schools in America are beginning to encourage specialists in biology and to provide half-heartedly for more or less instruction in tropical medicine. Few medical schools will do more until the demand for such instruction increases, but, obviously, the demand will increase, and it is likely to increase rapidly. Some of the larger medical schools should be prepared to meet this demand and they should, even now, be training men for the work. Else, they will be caught napping. The movement should be led by the few schools which are best situated and best equipped to undertake this kind of work.

At present, the opportunity for American physicians to make good use of special training in tropical medicine is restricted by the small size of our tropical dependencies* as compared with those of Great Britain, by the almost complete medical sterility of our Foreign Missions, and by the lack of vision of most of those in control of our commercial interests in the tropics.

The small purchasing power of the dollar in the United States handicaps the American who might wish to compete in a British dependency, and many tropical countries by their registration laws virtually debar the alien from private practice within their borders.

What, then, might induce the young American to seek a career in tropical medicine? Assuredly the inducement must be strong which will lead him to abandon home and friends to embark upon so uncertain a career. Several motives, probably, will influence the decision. Preëminent among the motives may be the desire to dedicate one's life to the care of sick and the prevention of disease where the need for medical help is very great; or the young man may be enthusiastic at the prospect of working in relatively untilled fields presenting problems which are endlessly varied and peculiarly fascinating. There might, also, be a romantic longing to breathe the perfumes of flowers, to admire the "blazing tropic night", or to enjoy the luxury of sleeping in a hammock. The feet may itch for travel and the eyes demand strange sights or the young man may be blessed, or cursed, with the spirit of adventure.

At this point a word may be said of the spirit of adventure. It is sometimes decried as if it were selfish or even disreputable and sometimes extolled as if it were heroic. Many Englishmen believe that they owe the existence of the Empire to their adventurers, and the English have erected a statue in London to the memory of their hero of Antarctic fame, Captain Scott, even though his object failed. We in America admire our early pioneers. We are proud that an American first reached the North Pole, and many of us are thrilled by the expedition in which Commander Byrd is now engaged. Certainly there is somthing inspiring in adventure, something which man craves instinctively, and which benefits even the individual who does not participate. Surely, too, the successes of adventurous persons have contributed much to the heritage of all dominant races.

Among the great pioneers of the tropics are the Spanish Captains, the Conquistadors, and the Jesuits who led the way in the New World. In more recent times individual explorers blazed the trails of Africa. Among many other names which come to mind are those of Du Chaillu, the naturalist; of Livingstone the missionary physician; of Stanley the journalists; of Cecil Rhodes; and of Dr. Jameson of South African fame. Tropical medicine, also, has had its pioneers. A few of them have already been mentioned in connection with the development of medical knowledge in this field.

Particularly in Cuba, Porto Rico, Panama, Hawaii, and in the Philippines, American physicians have been leaders. Some of the physicians who achieved most for humanity sacrificed their lives in the course of their work or died later leaving their families in actual want,—a fact greatly to be regretted. Our Government should provide liberally for the families of such men. In so doing it would, at least, acknowledge a debt which can never be paid.

Tropical medicine is an adventurous field not only because of the greater menace to health common to most parts of the tropics but also because some of the tropical diseases are especially dangerous to life. Witness the deaths of a number of investigators of typhus fever and the loss to Serbia of two-thirds of her medical profession during the typhus epidemic in 1915.

Quite recently the world has been shocked by the deaths from yellow fever in rapid succession of Dr. Adrian Stokes, of Dr. Hideyo Noguchi, of Dr. William A. Young, and of Dr. A. Maurice Wakeman in Africa. Incidentally, it may be stated that one of our own men has demonstrated a method of preserving the virus of yellow fever, which method has enabled him to bring the virus from Africa and to continue his work at home.

If our young physician will avoid the pitfall of personal publicity, and if he intends to strive earnestly to relieve suffering or to contribute to human knowledge, may not a desire for adventure find an honorable place beside the other motives which combine to lead him to the tropics? Let him seek the answer, and let him decide!

When contemplating a career in tropical medicine one should realize that much must be sacrificed, that the fancied charm of life in the tropics may prove to be an illusion, and that he who intends to reside for long periods in the tropics

*The laws regulating medical registration and practice in our dependencies are given in full in the Directory of the American Medical Association.

will need not only a good constitution but great strength of character as well, lest he partake too freely of the Lotus.

But the tropics, unquestionably, have an elusive charm. It is much like the "lure of the East", yet different. It is like the call of the sea, yet different again. I will close now with a few lines by Longfellow which indicate what I mean:

"Wouldst thou,"—so the helmsman answered,
"Learn the secret of the sea?
Only those who brave its dangers
Comprehend its mystery!"

FAYRO AND PYRO-PINE ADVERTISED

The Federal Trade Commission has issued a complaint against the Fayro Laboratories, Inc., manufacturers and advertisers of Fayro, an alleged fat-reducing bath salt. The Commission maintains that many of the advertising statements are false and misleading. Extensive advertising appeared in the *Boston Post*. The Fayro Laboratories filed an answer denying various allegations.

Contrary to the advertising claims of the company, the Federal Trade Commission states that Fayro is an unsafe, unscientific, ineffective, and undependable nostrum, and will not remove fat or flesh from the human body. It will not benefit Bright's disease. The baths as recommended may do much injury, particularly in cases of heart trouble, hardening of the arteries, exophthalmic goiter, etc., according to the Federal Trade Commission. The product was advertised under such a heading as "Each Fayro bath reduces your weight 2 to 4 pounds, easily, harmlessly, and pleasantly. No medicine. No exercise. No diet."

The Eastern Drug Company, Boston, was advertised as exclusive distributors. This same company is also advertised as distributors of Pyro Pine, a Reducing Bath Salt manufactured by the Peerless Products Co., and advertised locally in the *Boston Post* as "the modern medically correct method of reducing." This Bureau has reported to the *Boston Post* various expert opinions to the effect that bath salts in water cannot reduce fat. The advertising continued. Included in the information submitted to the *Boston Post* was expert opinion from the American Medical Association and from a local dietitian. The following statement regarding fat-reducing baths was made by the Bureau of Investigation of the American Medical Association:

"It can be said without fear of successful contradiction that it is impossible to reduce the obese by putting substances into the bath water. This particular method of 'obesity cure' fakery has long been popular, and there are on the market today a number of preparations of this type. They are all, without exception, humbugs.

"It is, of course, true that if a person will stay in a hot tub fifteen minutes or half an hour, he will lose a certain amount of weight, due to the excretion of sweat. It is also true that with the first pint of water or other beverage taken that weight will immediately be replaced."

Thelma Tubbs, dietitian, Peter Bent Brigham Hospital, Boston, Massachusetts (Gorgas Memorial Institute), recently made the following statements appearing in a local newspaper:

"The use of pills for reduction of weight is probably one of the most dangerous quack procedures that must be downed during this period of zeal on the part of the American people to acquire slender figures. Bath salts for the same purpose are fakes, pure and simple."

The National Better Business Bureau has recently issued a valuable and comprehensive bulletin on Obesity Remedies. This Bulletin was prepared after consulting with a number of obesity specialists, and is a digest of the information obtained from these authorities. In regard to the effectiveness of external remedies such as bath salts, the following applies:

"Medical experts state that soaps, creams, bath salts, and other external applications can have no possible influence in permanently reducing obesity. There is nothing that, put in the bath water, will reduce weight. Hot baths in themselves have some weight-reducing power because they speed up metabolism, and cause a reduction of weight by sweating out water from the body, but this weight is quickly replaced unless the diet is reduced, so that the actual weight remains unchanged. The addition of foreign substance to the bath water is wholly without any scientific basis. Rubbing and massaging will reduce weight to a limited degree, but any cream or pastes that are used in this treatment serve only as lubricants and do not have any weight-reducing qualities in themselves."

Pyro Pine is advertised at $2.00 a box and is offered as "The Fashionable Way to Reduce." In addition to its advertised fat-reducing properties, it is advertised as a splendid treatment for colds and a "remarkable remedy for Colds—Arthritis—Lame Muscles, etc." "Drop these fragrant crystals into your bath water at home and enjoy the process of getting slender" is typical of the advertising claims.

The Peerless Products Co., manufacturers of Pyro Pine, is a Massachusetts corporation located in Boston. One of the organizers and former president of the company was Frank S. Vickery, who has been in difficulties with the authorities on various occasions. A few years ago he was sentenced to State Prison on a plea of guilty to several charges of larceny. Recently Thomas B. Forsyth has been given as president and treasurer of the Peerless Products Co.—*Boston Better Business Bureau, Inc.*

THE PROBLEM OF THE CONTROL OF INFANTILE PARALYSIS*

BY JOHN LOVETT MORSE, M.D.†

THIS problem is one of the most interesting and, at the same time, one of the most baffling of those which at the present time are awaiting our solution. While I would not minimize its importance in the least, nevertheless, I feel that it is being relatively overemphasized and that the laity is being unduly alarmed about it. This is due in part to the spectacularity of some of its manifestations, in part to the sentimental appeal of convalescents giving their "life blood" to save the poor, innocent children, but chiefly to the fact that it furnishes striking headlines and interesting copy for the newspapers. No one gets excited over measles and whooping-cough, although the number of deaths from them and their complications is greater than from infantile paralysis. In Massachusetts, in 1928, there were reported 41,519 cases of measles with 266 deaths, 8,023 cases of whooping-cough with 208 deaths and 434 cases of infantile paralysis with 64 deaths; in Boston, 8220 cases of measles with 71 deaths, 1910 cases of whooping-cough with 52 deaths and 121 cases of anterior poliomyelitis with 14 deaths. In the cities and towns of this district the story is the same. In Cambridge, with an estimated population of 35,100 children under fifteen years of age, there were 2082 cases of measles with 11 deaths, 228 cases of whooping-cough with 7 deaths, 11 cases of infantile paralysis with no deaths; in Somerville, 842 cases of measles with 4 deaths, 145 cases of whooping-cough with 3 deaths and 8 cases of infantile paralysis with 1 death. In Waltham, with about 7000 children under sixteen years of age, there were 316 cases of measles, 109 of whooping-cough and 43 of infantile paralysis. There were six deaths from whooping-cough and its complications and seven from infantile paralysis. I do not know how many from measles. In Newton, with approximately 12,000 children below 15½ years, there were 1669 cases of measles with 4 deaths, 359 of whooping-cough with 1 death and 23 cases of infantile paralysis with 1 death.

These figures are sufficient, I think, to prove my point. I am unable to give any figures as to the number of children in the community who have chronic cardiac lesions as the result of acute infections of the throat and rheumatism, but am sure that it is greater than that of those disabled from infantile paralysis. Furthermore, these children with cardiac lesions are certain to die from them, unless they die of something else first, while the children disabled from infantile paralysis are in no danger of death because of their disability. Nevertheless, the newspapers and the laity are not excited and alarmed over sore throats and pains in the extremities. Two hundred and six children were killed and 9662 injured by automobiles in Massachusetts last year. Some of the figures for Middlesex County are: Cambridge, 10 killed and 405 injured; Somerville, 10 killed and 251 injured; Newton, 3 killed and 138 injured; Waltham, 2 killed and 123 injured. Nevertheless, although the number of children killed is much greater than the number of deaths from infantile paralysis and the number permanently disabled much larger than that from infantile paralysis, no one is excited, no one moves away, no one shuts up their children and the schools are not closed.

In attempting to solve the problem of the control of any disease, it is first necessary to determine its cause and next to discover how it is transmitted from one person to another. It is true that a disease may be more or less satisfactorily treated empirically when its cause and method of transmission are unknown, as malaria was with quinine. Malaria was not controlled, however, until the plasmodium was discovered and the part which the mosquito played in its transmission recognized.

ETIOLOGY

Little or nothing was known as to the etiology of infantile paralysis before 1907, although several observers had found diplococci in the spinal fluid of human beings ill with the disease. These organisms produced paralysis or death in animals inoculated with them. Some of them were culturable, others were not. In no instance was the disease transmitted to more than one generation of animals. In the light of the discoveries from 1907 to 1914, it seems almost certain that these organisms were a contamination.

Flexner and Noguchi's Virus. Intensive experimental work was carried on from 1907 to 1914 and the true cause of the disease was apparently discovered. Most of the work was done in this country, the bulk of it by Flexner and his co-workers. That of Lucas and Osgood in Boston should not be forgotten, however. The virus belongs in the class of filterable organisms. It can be cultivated anaërobically. It is a very minute globular or globoid organism, appearing in a variety of arrangements, single, double, chains, or masses, or in bizarre forms. It stains pale, reddish violet with Giemsa's solution. Recently, however, Flexner has said that the proof connecting these globoid bodies with poliomyelitis is not absolutely convincing. The virus is very highly potent, 1/1000 of a cubic centimeter

*Annual oration before the Middlesex South District Medical Society, April 17, 1929.

†For record and address of author see "This Week's Issue," page 1261.

of an aqueous solution of the spinal cord of a patient dead of the disease being sufficient to cause the disease in monkeys. It is very resistant to external agencies and conditions, withstanding glycerinization for months, drying and freezing. It is, however, readily destroyed by heat—45°C. to 50°C. for ½ hour—and by weak solutions of peroxide of hydrogen. Nothing is known as to its habitat outside the human body. The only animals susceptible to it experimentally are monkeys and perhaps young rabbits of certain breeds. Animals never contract the disease from each other.

Experimentally infection can be caused by the introduction of this virus into the cranial cavity, spinal canal, peritoneum, blood and the naso-pharyngeal mucosa, as well as under the skin and into the large nerves. The introduction of large quantities of virus into the stomach or duodenum does not lead to paralysis unless the peristalsis is arrested by opium. The mucosa of the nasopharynx is more easily traversed than any other avenue except the brain. If this mucous membrane is lightly scarified and the virus rubbed in, infection occurs promptly. It cannot penetrate the tracheal mucosa or lungs unless there are gross lesions. In man nothing whatever is positively known as to how infection actually takes place. It is evident, however, that it cannot take place by direct introduction into the cranial cavity, spinal canal, peritoneum or large nerves. The fact that experimental paralysis does not occur unless very large amounts are injected into the blood shows that infection through the blood, that is, through the skin, would be most unlikely to take place from the bite of any insect, by which only a small amount could possibly be introduced. It seems reasonable to suppose, therefore, that infection in man occurs through the nasopharyngeal mucosa.

Experimentally, this virus has been demonstrated in the nervous system, lymph nodes and pharyngeal mucosa. It has been found in the pharyngeal mucosa as late as 5½ months after the acute stage of the disease. It has also been found in the blood and cerebrospinal fluid early in the disease, but much diluted. In man, it has been demonstrated in the brain and spinal cord, lymph nodes, tonsils and pharyngeal mucosa, and in the secretions of the nasopharynx. The virus is not destroyed when it is swallowed and, therefore, may be present in the intestinal discharges. It is not present in the urine. Experimentally, the blood does not contain the virus in the paralytic stage. Moreover, when the virus is injected into the brain, the blood, 48 hours later, will not infect, even when given intracerebrally. These facts are important because they show how improbable it is that a biting insect could get the virus by biting a person ill with the disease.

It has been shown that this virus escapes from the body in the secretions of the nasopharynx. As it is not destroyed in the digestive tract and the secretions of the nasopharynx are swallowed, it must also be present in the intestinal discharges. This has been proven to be the case. The virus has been found in the nasopharyngeal secretions as long as 7 months after the onset of the disease and in the nasopharyngeal secretions of healthy individuals who have been in close contact with patients ill with it for almost as long a time.

Further experimental evidence to show that this virus is the cause of the disease is that the blood of both human beings and monkeys that have recovered from infantile paralysis contains immune bodies which, when mixed with the virus, neutralize it and prevent infection. Furthermore, injections of immune serum intracerebrally or intraspinally, in proper doses, soon after infection with the virus, prevent the development of the disease.

During this period, 1907 to 1914, it was also definitely shown that the epidemic paralyses, which occur in animals and fowls, were not the same disease as infantile paralysis in man. It was shown, however, that the virus might be present in the dust of rooms in which there had been cases of infantile paralysis. This is not surprising, as it is known that the virus is present in the secretions of the nasopharynx and in the intestinal discharges, and that it is very resistant to drying. It was also shown, as would naturally be expected, that house flies can carry the virus in an active state on the surface of the body for several days and in the intestinal tract for several hours. Other insects can also, of course, carry the virus on the surface of their bodies. It is possible, therefore, for flies and other insects to contaminate food and for the virus to be introduced in this way into the human body. It would do no harm, however, if it was swallowed, because infection cannot occur through the digestive tract. It hardly seems probable that there would be sufficient virus, even if there was considerable, for infection to occur through the nasopharyngeal mucosa. Mosquitoes and lice do not maintain the virus in a living state in their bodies, while bedbugs may for a week. Even if they do, however, it seems most improbable, as already stated, that the bite of an insect could introduce enough virus into the blood to cause the disease. Experimentally, the virus was apparently transferred in monkeys by bites of the stable fly. Later experiments, however, seemed to disprove it. At any rate, nothing has been heard of it since. A few years later it was suggested on epidemiologic grounds that the rat flea might be the method of transmission, the distribution being dependent on the migratory habits of rats. No proof, however, was adduced or has been forthcoming. The improbability of infection through bites has, moreover, been mentioned. Incidentally it has been found not only that rats cannot be infected with the disease, but that in

times of epidemics the blood of rats in the affected areas does not contain the virus.

Rosenow's Pleomorphic Streptococcus. In 1916 Rosenow, Nuzum, and Mathers, in connection with a number of co-workers, independently reported the discovery of a peculiar streptococcus, which later became known as the "pleomorphic" streptococcus, in this disease, which they believed to be the cause. The literature regarding this organism is voluminous. In brief, Rosenow and his co-workers have found these organisms in the throats and tonsils of patients with infantile paralysis, in the spinal fluid at all stages and, in fatal cases, in the central nervous system. It is pleomorphic, the size depending upon the media on which it is grown. It is both aërobic and anaërobic. It passes through a Berkefeld filter. They suggest that the organisms described by Flexner and Noguchi may be these streptococci grown under anaërobic conditions. When introduced intranasally, intraspinally, intracerebrally or intravenously into the system of animals it causes a flaccid paralysis. Monkeys, lambs, rabbits and dogs are susceptible. It can be carried through a series of animals and still be infectious. The lesions are described as being typical of infantile paralysis. The opsonic index of patients with infantile paralysis is high for streptococci found in fatal cases. The serum of humans and monkeys recovered from infantile paralysis agglutinates specifically the more sensitive strains of this pleomorphic streptococcus from both humans and monkeys. Injections of aërobic cultures make monkeys refractory to the virus. The serum of horses immunized with this organism protects monkeys relatively against intracerebral inoculation of the virus. These organisms are agglutinated by antipoliomyelitis horse serum. They are not found in the spinal fluid in other diseases of the nervous system. Rosenow believes that his antipoliomyelitis horse serum has curative powers in infantile paralysis.

Rosenow's views have not been generally accepted. Others have not found this streptococcus in the spinal fluid in infantile paralysis. Others, in experiments on monkeys, find streptococci only late in fatal cases, never in animals killed while strong, showing it to be simply a concomitant or secondary invader. Others say that this streptococcus is no different from other streptococci and that it is not specific. Still others have found no agglutination of the pleomorphic streptoccoccus by the blood serum of monkeys convalescing from infantile paralysis. Others say that the lesions produced in the nervous system are not those of infantile paralysis, but those of purulent meningoencephalitis. As already stated, Rosenow suggests that the globoid bodies described by Flexner and Noguchi may be a stage in the developmental history of the pleomorphic streptococcus. The strictly anaërobic nature of these bodies and the extraordinary difficulty of their cultivation makes such a connection very improbable. Flexner has said recently, moreover, that even now the proof connecting the "globoid" bodies with poliomyelitis is not absolutely convincing.

Antipoliomyelitis Horse Serum. Rosenow, using aërobic cultures of his pleomorphic streptococcus, has produced in horses a serum which he believes to have neutralizing, protective and curative power against the virus of poliomyelitis. He says that it protects monkeys relatively against the intracerebral inoculation of the virus. It is not effective experimentally if given intraspinally. In fact, he agrees with others that the injection of horse serum intraspinally increases the susceptibility to infection. It must be given, therefore, intravenously or intramuscularly, preferably intravenously.

His opponents say that the pleomorphic streptococcus used in immunizing the horses from which the serum is taken, is not the cause of infantile paralysis. The serum, therefore, cannot possibly do any good. It is not viruscidal either *in vitro* or *in vivo*. The injection of a mixture of this serum and the virus into the brain accelerates rather than delays the onset of the disease.

The experimental evidence seems strongly against Rosenow and in favor of those who believe that the pleomorphic streptococcus is not the cause of the disease and that his serum must, consequently, be valueless. Nevertheless, it has been used extensively in the treatment of infantile paralysis with, according to the statistics given, astonishingly favorable results. I will cite a few of them.

Rowan reports an epidemic of 85 cases in Dubuque, Iowa. Eight of 17 untreated died, or 47%. Two of the 68 treated with serum died, or 3%. There was no difference in the cases except the treatment.

Rosenow, writing in 1921, reports 259 cases treated. Sixty were in the preparalytic stage. None died. In the only one which developed paralysis, which was slight, recovery was complete. Sixty-one had slight paralysis at the time of injection. None died. Sixty recovered completely and the residual paralysis in the other one was slight. One hundred and twenty-three had advanced paralysis when injected. Eighteen died, but eleven of these had bulbar symptoms when the treatment was given. Sixty-one recovered entirely. The mortality in the series was 7.3%. In a control series of 72, the mortality was 25%, with residual paralysis in 56% of those that recovered.

Rosenow, writing in 1927, sums up the cases reported from 1921 to 1925 inclusive. He says there is "no doubt as to the diagnosis in any". One thousand, one hundred and thirteen cases were treated, with 278 controls. The mortality was 14.3%; omitting the moribund, 8.7%. In the controls it was 29.5%, and in 11,682 cases collected from literature, 29.2%. Eighty-one per cent. of those with no paralysis when treated

had no residual paralysis; 55.1% of those with slight, 26% of those with moderate, 26.8% of those with marked paralysis, when treated, had no residual paralysis; 45.3% of all the treated cases had no residual paralysis against 31% of the controls.

In spite of these remarkable figures, the Council on Pharmacy and Chemistry of the American Medical Association, in February, 1928, refused to include Rosenow's antipoliomyelitis horse serum in "New and Non-Official Remedies", because "the organism from which the serum is produced by the treatment of horses is not generally accepted as the etiologic agent of poliomyelitis, the groups treated and not treated are not comparable and physicians use it because newspaper publicity compels them to. Privately they express great doubt as to the usefulness of the serum." Flexner, in discussing this serum, says, "So many undeterminable factors attend this disease, beginning with diagnosis and ending in prognosis, that the effect of a therapeutic measure can be ascertained only with doubt in the present imperfect state of our knowledge of this extremely variable disease. The reports are misleading and unconvincing. The difficulty is a statistical one, as is so often encountered in medical literature."

These criticisms are entirely warranted. They apply equally well, moreover, to the results reported from treatment with convalescent serum.

From the experimental work on animals, it seems justifiable to assume tentatively that the cause of infantile paralysis is a filterable virus, that the pleomorphic streptococcus is a secondary or concomitant invader and that the "globoid" bodies may or may not be a visible form of the organism which causes the disease. If the cause is a filterable virus, the results claimed for Rosenow's serum can best be explained by the fallibility of medical observation. They suggest the suspicion, however, that everybody may be wrong as to the etiologic factor in infantile paralysis and that it may be something which has as yet not even been thought of.

TRANSMISSION

If the filterable virus of Flexner and Noguchi is accepted as the cause of infantile paralysis, it seems evident from their experimental work and that of others that, in taking measures for the control of infantile paralysis, it is not necessary to consider animals and biting insects as carriers of the disease. It is also evident that, as the virus is present in the secretions of the nasopharynx and in the intestinal excreta, flies and other insects may be contaminated by them and infect food with it. The virus being anaërobic, it is evident that it cannot multiply in or on the contaminated food. When it is remembered that infection probably takes place through the nasopharyngeal mucosa, not through the gastrointestinal tract, that the amount of the virus deposited on food by insects is necessarily small and that it does not grow in or on food, the chances of human beings being infected through food seem very small. Nevertheless, three small epidemics of infantile paralysis have been reported in which contaminated milk was thought to be the carrier. The evidence is more or less convincing, according to the point of view. Granting that milk was the carrier in these few instances, which is doubtful, this fact does not justify us in frightening people so that they are afraid to drink milk. Contamination of the milk cannot occur if the usual measures for the protection of the milk supply are carried out. It is plain, moreover, that, even if milk was the cause in these instances, it is not the usual means of contagion. No connection has ever been traced between raw fruit and vegetables and epidemics of infantile paralysis. It is remotely possible, of course, that the virus of infantile paralysis might be deposited on fruit and vegetables in the secretions of the nasopharynx or in the excreta of persons ill with the disease or who are carriers. How small the chances of infection in this way are, has however, just been pointed out. They are certainly not large enough to justify us in advising people not to eat raw fruit or vegetables. It is very evident again, from the study of the epidemiology of the disease, that, even if the virus is occasionally carried on raw fruit and vegetables, it is not the usual method. While it seems certain that insects cannot carry the virus by biting, that the chances of their conveying it by infecting food are infinitesimal, and that it is impossible to trace any connection between the distribution and habits of any insects and the course of epidemics, nevertheless, it is a fact that epidemics cease at about the time that cold weather destroys insects. It is also a fact that the virus is very resistant to cold. How can these facts be explained? With our present knowledge, they cannot be. One thing is plain, however, and that is, if patients with infantile paralysis are kept in screened rooms and the nasopharyngeal secretions and intestinal excreta disinfected or destroyed, all danger of the spread of the disease by insects or food is eliminated.

QUARANTINE

It has been shown experimentally that the virus escapes from the body in the secretions of the nasopharynx. It has been shown to be present in the nasopharyngeal secretions of those ill with the disease. How long it usually persists is unknown. Experimentally it is seldom longer than one week. In man there are no data of any importance, although it has been found as long as seven months. The only way in which reliable information can be obtained is by the repeated inoculation of monkeys, the only susceptible animals, from convalescent cases of human infantile paralysis. This is obviously out of the question, because of the expense and labor involved. What evidence there is from

epidemiologic studies is, because of the many other factors involved, unsatisfactory and unconvincing. As far as it goes, it seems to show that it is seldom more than two weeks. On the present evidence, therefore, a period of quarantine of two weeks, or, to be on the safe side, of three weeks, would appear to be sufficient. This period is, however, an arbitrary one and based largely on guess work. It is impossible to inoculate monkeys every few days from every patient to determine when they cease to be contagious. This method does not, moreover, eliminate the carriers, which have been shown to occur. There are no data as to how common they are. Presumably they are uncommon, as, after two or three years, the disease practically ceases in a given community. This cessation may, however, be equally well explained by a general insusceptibility or subclinical immunization. The virus has also been found in the nasopharyngeal secretions of healthy individuals in close contact with persons ill with infantile paralysis and for several months after the cessation of such contact. It is again obvious that, as the only way to find out whether contacts carry the virus or not is by the inoculation of monkeys, the only feasible plan is to allow them to go their own way.

PERIOD OF OBSERVATION

Experimentally, in monkeys, symptoms of invasion of the central nervous system appear in from three to four days after the application of the virus to the scarified nasopharyngeal mucosa. Naturally no experiments have been made on man. From the study of epidemics it seems probable that more than one half of the cases develop within three days after exposure, almost all within a week and probably all within twelve days. A period of observation of two weeks ought, therefore, to be sufficient. It must be remembered, however, that it is probable that, as in diphtheria, the organisms may be carried for a considerable time and do no harm until the portals are opened for them by some injury to the mucosa.

IMMUNITY

The relative infrequency of infantile paralysis, even in epidemics, in comparison with that of the other communicable diseases has already been mentioned. It is evident that the susceptibility to it is much less than to the others. In the New York City epidemic of 1916, for example, only 2% of the children exposed in families contracted the disease. These figures are borne out by the general experience that when several cases occur in the same family they almost always develop simultaneously, or almost simultaneously, showing a common source of infection, and that secondary cases are very unusual. It is also well known that secondary cases almost never develop in institutions in which cases of infantile paralysis are treated, even when special precautions against contagion are not taken. If, as is believed, the virus is present in the secretions of the nasopharynx, it would seem as if it should be as contagious as measles and whooping-cough, in which the causative organism is also present in the nasopharyngeal secretions. The fact that it is not suggests that there is a natural or acquired immunity to it or some special means of defense in most individuals most of the time.

It is a well known fact that an active immunity is established by an attack of infantile paralysis and that the blood of those who have recovered from this disease contains viruscidal substances. It is also well known that infants and young children are more susceptible to infection than older children and adults. This suggests that a certain degree of immunity is developed with age. The most reasonable explanation is that abortive and unrecognized attacks are common or that, as in the case of diphtheria, immunity has developed as the result of continuous or frequent exposure to subinfective doses of the virus. It is obvious, however, that, as monkeys are the only animals susceptible to infection with this virus, it is impossible to determine experimentally on a large scale in what proportion of older children and adults the blood contains viruscidal substances or in what concentrations. It is known, however, that they are present in the blood of some individuals who, as far as is known, have not had the disease. In rural districts this diminishing susceptibility with increasing age is less marked than in urban. The probable explanation of this fact is that, as in diphtheria, the opportunities for subclinical infection are less and, in consequence, immunity is less often developed.

Granting that a more or less complete active, acquired immunity is present in many older children and adults, although it is not proven, the question arises as to whether it is due to abortive and unrecognized attacks of the disease or to subclinical infection. This question is interesting, but largely academic. At present, with the means at our command, it is impossible of solution. Luther's investigations in Haverhill and Waltham in the last two years suggest, however, that abortive attacks of infantile paralysis are less common than has been supposed and that immunity is probably due to subclinical infection.

It is not necessary to assume, however, that the lack of susceptibility to infection with infantile paralysis is due to an active immunity. It has been shown experimentally that washings from the nasal and pharyngeal mucosa possess definite power to inactivate or neutralize the active virus of poliomyelitis. It has also been found that in monkeys the normal nasopharyngeal mucosa will prevent the passage to the brain and spinal cord of virus applied to it.

Inflammatory conditions of and injuries to the nasopharyngeal mucosa diminish the protective power of washings from the nasopharyngeal mucosa to neutralize the virus. Furthermore, virus applied to the abnormal mucosa passes quickly to the brain and cord. The conclusion seems justified, therefore, that in man a normal mucosa with normal secretion probably affords protection against infection with the virus of infantile paralysis, while an abnormal mucosa is less resistant. This seems a reasonable explanation of the relative infrequency of infection. An objection to this explanation is that epidemics of infantile paralysis occur at the time of the year when the mucous membrane of most people is most nearly normal and stop at the time when inflammatory conditions of the nasopharynx begin to be common.

It has been shown experimentally on monkeys that antiseptic chemicals applied to the nasal mucosa, on which the virus has been deposited, show no great protective action and are of doubtful value. In fact, there is some evidence to show that they impair the protective power. As applications of this sort have been shown to have no protective power in animals and as applications of any kind are apt to irritate the nasopharyngeal mucosa of human beings, it seems justifiable to advise strongly against the use of any applications to the nose and throat with the idea of protection against infection. There is no chance of their doing good and much of their doing harm.

The meningeal-choroid plexus complex is normally capable of excluding the virus from the central nervous organs. This probably affords additional protection against infection of the central nervous system, even when the virus has passed through the mucosa. This question is of academic rather than of practical interest, however, as, while it is possible to injure this complex, there is nothing which can be done to protect it from injury.

In considering the subject of immunity to infantile paralysis the question at once arises as to whether it is possible to immunize human beings either actively or passively against infection with this disease.

Active Immunization. It is known that the killed virus has no immunizing power and it is probable that the attenuated virus has none. Aycock and Kagan have succeeded in immunizing monkeys to a greater or less extent by the intracutaneous injection of active virus. Nearly 10% of the animals, however, developed the disease. It is, therefore, too dangerous a method even to consider at present.

Passive Immunization. As far as I know, there are no data as to passive immunization with convalescent serum in human beings. When introduced into the blood, the immune products do not pass through the normal choroid plexus into the cerebrospinal fluid. Nevertheless, convalescent serum, introduced into the blood of monkeys will prevent an intracerebral injection of the virus from producing paralysis. Presumably this is because the virus injures the choroid plexus and thus allows the immune bodies to pass. The injection of immune serum intraspinally as a preventive is hardly justifiable, as the serum sets up an aseptic inflammation and breaks down the barriers of the choroid plexus and increases the danger of infection of the nervous system, although, on the other hand, if the virus passes, the immune bodies are there to neutralize it. Unfortunately, it is not known how long immune bodies introduced in this way remain in the blood and, consequently, how often injections would have to be repeated. Nothing is known as to the dose necessary. Flexner has suggested 10 c.c. subcutaneously for young children and 20 c.c. for older children and adults, repeated every 4 to 6 weeks.

For the present, passive immunization has evidently hardly reached the experimental stage. Even if it is attempted on a reasonably large scale, it will be extremely difficult to decide whether it is of benefit or not, because the susceptibility to the disease is so slight. It is not likely that it will be tried, anyway, as convalescent serum is so scarce.

TREATMENT

Having considered the measures to be taken to control the spread of the disease, the next thing is to evaluate what can be done to control it in the individual. On the basis of experimentation on monkeys it is believed that the virus passes along the fibers of the olfactory nerves to the olfactory lobes. There are two possible ways by which it may further invade the nervous system. It may pass on by direct extension. On the other hand, it may, either before it gets to the olfactory lobes or later, break down the barrier of the meninges-choroid plexus complex and pass into the cerebrospinal fluid and thence into the tissues of the brain and cord. The experimental evidence seems to show that the blood stream is not invaded, or, if it is, only to a very slight degree. It is plain that there will be no symptoms pointing to the nervous system until the invasion has proceeded further than the olfactory nerve fibers. If there is no invasion of the blood stream, there should be no systemic symptoms. This is apparently the case in monkeys. In man, however, symptoms of the invasion of the central nervous system are often preceded by several days by symptoms of systemic infection: fever, disturbance of the digestion, catarrhal manifestations in the nasopharynx. How can they be explained without a blood infection? I do not know. There is nothing characteristic about these symptoms and it is impossible to know whether, in a given case, they are due to infantile paralysis or not. Furthermore, the cerebrospinal fluid at this time is normal. It is obvious, therefore, that, as the disease cannot be recognized at this stage, it can-

not be treated. This statement should be qualified, however, because, if convalescent serum proves to be as valuable as it is claimed to be in the treatment of infantile paralysis, which, at present, is open to question, an intraspinal or intravenous injection of this serum should prevent the invasion of the nervous system. In the present state of our knowledge, however, it does not seem reasonable to give every sick child, even at times when infantile paralysis is prevalent, an injection of convalescent serum.

If the barrier of the meninges-choroid plexus complex is broken down and the virus enters the cerebrospinal fluid, invasion of the central nervous system begins at once. Symptoms of meningeal irritation develop, which are quite characteristic. There is general hyperesthesia, slight stiffness of the neck, more of the spine as a whole, and perhaps sweating, drowsiness or restlessness and excitability. The tache cérébrale, which is often mentioned, I believe to be of no value, as it is present in so many conditions in early life. The pressure of the cerebrospinal fluid is increased and it is slightly opalescent. The globulin content is increased. It contains an excess of cells. If taken early enough, the polynuclears predominate; if a little later, mononuclears. This is the so-called preparalytic stage. It is true that certain other diseases, such as tuberculous and syphilitic meningitis or encephalitis, may give a somewhat similar picture and findings in the cerebrospinal fluid. The onset is so different in these diseases and there are so many other minor points of difference, however, that there should be no trouble in the diagnosis.

It is in this, the preparalytic stage, that the treatment to control the disease must be given, because, at this time, before the nerve cells have been damaged, it is possible, at least theoretically, to neutralize or destroy the virus and prevent injury to the nerve cells. After these have been damaged, as is shown by paralysis, there is no form of treatment which can, even theoretically, repair this damage, although it must be admitted that further damage might possibly be prevented.

It is now generally agreed that there is no drug which, given by the mouth, has any curative action. Hexamethylenamin, which was at one time so highly recommended, is of no value. It is broken up only in acid media, and the blood and cerebrospinal fluid are alkaline. It is inert unless broken up. Adrenalin has been used intraspinally with the idea that, by contracting the blood vessels, it might prevent invasion of the brain and cord. It could do no good if it did, because the virus does not enter the cord in the blood, but by way of the lymphatics or along the nerve trunks. Furthermore, it has been found experimentally that the introduction of any substance, even convalescent serum or the sterile cerebrospinal fluid from another monkey, sets up an aseptic meningitis which opens the doors to further invasion of the nervous system. The only reason that convalescent serum does not do harm, if it does not, is that the immune bodies which it contains neutralize the virus whose passage into the cerebrospinal fluid and central nervous system is rendered easier by it. The question at once arises as to whether lumbar puncture *per se* does any harm. Experimentally, it has been shown that simple lumbar puncture does not promote infection when the virus is introduced into the blood, that is, it does not break down the barriers of the meninges-choroid plexus complex. If, however, there is even very slight hemorrhage, infection is promoted. Hemorrhage into the spinal fluid during lumbar puncture, even when performed by experts, is not at all uncommon. It seems to me, therefore, that lumbar puncture as a diagnostic measure cannot be regarded as an entirely innocuous procedure.

Spinal Drainage. Nevertheless, in spite of the possible danger of hemorrhage and consequent impairment of the defenses against invasion of the cord, repeated lumbar puncture, "spinal drainage", has been employed and highly recommended in the treatment of this disease. It does not seem reasonable to expect that it would do much good, because the virus, on account of its strong affinity for nervous tissue, apparently leaves the cerebrospinal fluid almost immediately. At any rate, it is not present in human cerebrospinal fluid in sufficient concentration at any stage of the disease to make it possible to infect monkeys with it. Series of cases are reported in which diagnostic puncture was done in the preparalytic stage and in a considerable proportion of which, 72% in one series, paralysis did not develop. This percentage compares very favorably with the results claimed for convalescent serum. Ulrich, in two series of twenty cases each, in the paralytic stage, one treated with convalescent serum and one by repeated lumbar punctures, obtained practically identical results in both: 40% marked, 40% moderate and 10% slight improvement. What answers can we give to the questions which these series suggest? Was the diagnosis wrong in those supposed to be in the preparalytic stage? Would the patients have developed paralysis if they had not had the lumbar punctures or serum? When the patients who had serum recovered without paralysis, was it because of the serum, or because of the lumbar punctures, or in spite of both? It seems to me that these queries are unanswerable. These series do show, however, how careful we must be in drawing conclusions from small series of cases and how chary we must be of attributing what seem to be favorable results from any form of treatment to the treatment. The fact that other observers have not seen any favorable results from either single or repeated lumbar punctures, does not make

the answers to these questions any easier. Neither does it make the case in favor of convalescent serum any stronger.

Normal Serum. Normal human serum, and incidentally horse serum, have also been used intraspinally in the treatment of infantile paralysis. As already stated, it has been shown experimentally that the injection of any foreign substance, even if sterile, sets up an aseptic meningitis which opens the doors for the invasion of the brain and cord by the virus of the disease. Strange as it may seem, normal serum was used at one time because it was thought that the reaction which it caused in the cerebrospinal fluid would do good. Now we believe that it does serious harm. Nevertheless, in 10 cases treated with normal serum and 54 with immune serum in the preparalytic stage by Zingher, in 1917, there were 90% which did not develop paralysis among those who received normal serum in comparison with 81% in those who received immune serum. Of 119 treated in the paralytic stage with immune serum, less than 7% recovered entirely, while of 33 treated with normal serum, more than 12% recovered entirely. Ulrich, also in 1917, obtained almost identical results in two small series of cases treated with normal and with immune serum. One obvious explanation of the failure of the immune serum to give as good results as the normal serum is that the normal serum also contained immune bodies. It is evidently impossible, 12 years later, to know whether this explanation is correct or not. Another possible explanation is that neither did any good and that the results were uninfluenced by either treatment. As immune serum sets up the same aseptic inflammation as normal serum, it might be argued that the immune serum did more harm than the normal!

Convalescent Serum. There is no doubt that, experimentally, the blood serum of both humans and monkeys, convalescent from infantile paralysis, neutralizes the virus of infantile paralysis both *in vitro* and *in vivo*. Even after intracerebral inoculation, if introduced early into the subdural space, it prevents or delays the appearance of the disease. When given subdurally, that is intraspinally, it will protect against intracerebral inoculation for at least two days. When given intraspinally the immune bodies reach the blood in a few hours and the protective effect against local inoculation lasts at least four days.

It would appear from these experimental findings that convalescent serum should be of great value in the treatment of infantile paralysis, at any rate in the preparalytic stage. Has clinical experience shown that it is? Opinions differ. I have already referred to the comparative results obtained by Zingher and Ulrich with immune and normal serum. Ulrich's results without any treatment were almost as good as those with immune serum. Ogilby had 86% without paralysis in cases treated in the preparalytic stage and 83% in the untreated. Peabody, in the report of the Harvard Infantile Paralysis Commission in 1921, stated that the Commission, on the basis of its experience with convalescent serum in the epidemic of 1916, did not feel justified in using it in that of 1920. In that epidemic they simply aided in diagnosis. No paralysis developed in 69% of the cases treated with serum in the preparalytic stage in 1916, and exactly the same percentage in those in which the diagnosis was made in this stage and no serum given in 1920. The average mortality in the treated cases in the epidemic of 1916 was that of the whole epidemic. Watkins and McKenzie, in the Detroit epidemic of 1925, obtained twice as good results with Rosenow's pleomorphic serum as with convalescent serum.

In the Massachusetts epidemic of 1927, 106 cases were treated under the direction of the Harvard Infantile Paralysis Commission in the preparalytic stage with immune serum either intraspinally or both intraspinally and intravenously. Only one died, giving a mortality of less than 1%, compared with a general mortality of 14%. Sixty-four per cent. of those treated developed paralysis. Four hundred and eighty-two of the untreated cases came later to the Harvard Infantile Paralysis Commission for treatment for paralysis. By the scale used by the Commission the grade of paralysis was 63.6 in these cases, as against 19 for the paralyzed treated cases. In order to forestall the arguments that the mild cases of paralysis in the untreated did not consult the Commission and that many preparalytic cases were not recognized and recovered without paralysis, Aycock and Luther cite their study of a group of 110 cases at Haverhill. The mortality in this group was practically the same as in the state as a whole. Hence they think that cases were not missed. Only 26 were seen in the preparalytic stage, all of whom were treated with convalescent serum. Paralysis developed in 17, or 65%. This paralysis was severe in only 0.7%, while it was severe in 11.1% of the untreated. They say that, if there had been a large number of missed cases in proportion to the severely paralyzed, there would have been 1157 cases. This could not have been the case, as the Commission saw almost all the sick children in Haverhill at that time. You have heard their observations on the epidemic of infantile paralysis in Waltham in 1928. If their figures have been published, I have not seen them.

It would appear from these latter data that convalescent serum is of distinct value in the preparalytic stage of infantile paralysis, both in preventing the development of paralysis and in diminishing its severity, if it does develop. Yet, in Haverhill, paralysis developed in 65% of the cases treated in the preparalytic stage.

On the other hand, Ogilby had no paralysis develop in 83% of 24, The Harvard Infantile Paralysis Commission in 69% of 13 and Draper in 63% of 30 untreated cases in which the diagnosis was made in the preparalytic stage. Rosenow reports that of 92 treated in the preparalytic stage with his antipoliomyelitis horse serum, only 2, or 2.2%, developed any paralysis. How can we reconcile these conflicting results? It is easy for one side to say that the diagnosis was wrong in the cases reported by the other side. It is equally easy for one who is on neither side to say that both were wrong. On the other hand, perhaps they were both right. Who knows? It seems to me that what Flexner said in discussing Rosenow's antipoliomyelitis horse serum, already quoted, applies almost equally well to convalescent serum, "So many undeterminable factors attend this disease, beginning with diagnosis and ending in prognosis, that the effect of a therapeutic measure can be ascertained only with doubt in the present imperfect state of our knowledge of this extremely variable disease. The reports are misleading and unconvincing. The difficulty is a statistical one, as is so often encountered in medical literature." Some of the reasons which the Council on Pharmacy and Chemistry of the American Medical Association gave in refusing to include Rosenow's serum in New and Non-Official Remedies also seem applicable in this connection—"The groups treated and untreated" may "not" be "comparable and physicians use it because newspaper publicity compels them to. Privately, they express great doubt as to the usefulness of the serum." This latter statement I am prepared to corroborate.

The practical question, it seems to me, is whether, in spite of the conflicting and unconvincing clinical evidence as to the value of convalescent serum in infantile paralysis, we are justified, on the basis of the extremely strong experimental evidence in its favor, in continuing to use it clinically. I believe that we are. Those who use it, however, must entirely disabuse themselves of all preconceived prejudices as to its usefulness and employ it with an open mind. They must at all times have a healthy skepticism as to the value of their remedy, they must not buoy up the public with false hopes, they must shun newspaper publicity as they would the plague and, above all, they must avoid advertising themselves.

The next question is, if convalescent serum is to be used in the preparalytic stage, whether it should be given intraspinally, intravenously or both. We must look to the experimental work on monkeys for the answer. Judging from the work which Flexner and his associates have done, the immune bodies which it contains cannot pass from the blood through the normal meninges-choroid plexus complex into the cerebrospinal fluid. Presumably, however, this complex is damaged before the symptoms of the preparalytic stage develop. It is probable, therefore, that when the serum is given intravenously the immune bodies can pass into the cerebrospinal fluid. They must do this to do any good, because the virus leaves the blood so quickly that they cannot neutralize it in the blood to any appreciable extent. They must meet the virus in the cerebrospinal fluid. When the serum is given intraspinally all the immune bodies which it contains are introduced into the cerebrospinal fluid at once, where they can do the most good. The fact that the serum damages the meninges-choroid plexus complex is unimportant, because it is already damaged and the immune bodies are in the cerebrospinal fluid to meet the virus as it enters. The immune bodies also pass within a few hours into the blood, from which they can pass again through the damaged complex into the cerebrospinal fluid. Theoretically, therefore, it is very evident that convalescent serum should do more good when given intraspinally than when given intravenously. The only apparent object in giving it intravenously at the same time would be to introduce more at one time than could safely be put into the spinal canal.

The next question is whether one or repeated doses should be given. In order to do good, the immune bodies must meet the virus before it has affected the tissues of the brain and cord. It is evident, therefore, that the earlier the serum is given, the better should be the results. It is also evident that a small dose early should do more good than a larger one later. It is plain that after the cells of the brain and cord have been injured by the virus, the serum can do no good to the injured cells. The only thing that the serum can possibly do after paralysis has begun is, therefore, to prevent the involvement of new cells and thus of further paralysis. The speed at which the nervous system is involved after the virus once passes the barriers, however, makes it appear unlikely that much can be hoped for from secondary injections. Theoretically, therefore, as large a dose as possible should be given as early as possible. If it is thought that the dose was not sufficient, it should be repeated in a few hours. If paralysis has begun to develop, there is little to be expected from further injections, although it is probable that they will do no harm.

I shall not attempt to draw any conclusions from the data which I have presented additional to those which I have already noted in discussing them. I have tried to present the experimental and clinical evidence fairly and leave it to you to make your own deductions and to act on them as you see fit.

NEW ENGLAND SURGICAL SOCIETY

PELVIC EXCLUSION*

An Operation for the Relief of Visceroptosis

BY GEORGE ALBERT MOORE, M.D., F.A.C.S.†

THE presentation of a subject so generally discredited by conservative surgeons requires an explanation, possibly an apology. Coffey[1] has stated that the surgical treatment of visceroptosis is "one of the most dangerous fields that has ever been opened to the unscrupulous surgeon."

The best argument that I have to offer in defense of my ethics is the very small number of operated cases which I shall present.

I feel that my experience is not unusual in having seen quite a number of patients with visceroptosis, who were not relieved by efficient, conservative methods of treatment. Surgical treatment was not advised in the early cases on account of the unfavorable results following fixation and suspension operations.

In recent literature a few surgeons of recognized ability have advised operation in selected cases of visceroptosis, which were not relieved by conservative treatment. Their reported results were an incentive to me to attempt surgical relief in a small number of these rather hopeless cases. The improvement observed in these patients following operation is my apology for briefly reviewing the subject of visceroptosis and describing the technic of the operation employed.

It has been stated frequently in the past that a cause of visceroptosis in man is lack of adaptation to the erect posture. If this theory is correct, it would appear that evidence of ptosis of viscera should be found in the semi erect types. A search of the literature and many inquiries from students of comparative anatomy has been quite unproductive except in one instance. A personal communication from Professor Herbert Fox, Pathologist to the Philadelphia Zoological Garden states that "our records show only three instances in which the man doing an autopsy felt justified in diagnosing a visceroptosis. Curiously these were only in birds, a parakeet, a parrot and a quail." In so far as the anthropoids are concerned, the relational anatomy is so close to that of the human being that the judgment of visceroptosis would be less difficult. I believe never to have seen anything to which I could apply that diagnosis. We have had fourteen autopsies among the anthropoids."

In support of the theory that visceroptosis is a congenital condition Vietor[2] has reported studies of the foetus from the fourth to the ninth month intrauterine in about forty cases. She has concluded that abdominal incompetence is a fundamental cause of splanchnoptosis and that this is a developmental factor.

X-ray studies of about two hundred and fifty school children were made by Smith and Butler[3], who stated that the stomach, liver and kidneys were rarely in a low position before the twelfth year. Their observations would appear to be in accord with the fact that the initial symptoms of visceroptosis in many cases occur during the period of most rapid growth. It is quite possible that over-fatigue during this epoch of a child's life is a causative factor.

The question of precedence of the symptoms of visceroptosis has been discussed by Osgood[4] and other writers. They assert that proof is still lacking whether a general loss of muscular tone and fatigue symptoms or ptosis of viscera and the characteristic gastro-intestinal signs initiate the disease. Osgood has stated that it is his impression that ptosis almost invariably precedes by many years the onset of circulatory, nervous and digestive symptoms.

In 1923, Moody, Van Nuys and Chamberlain[5] reported the results of their x-ray studies of six hundred healthy young individuals. They found the stomach 3 to 7 cm. below the interiliac line in 80.6% of the cases in their series and that the normal position of the colon was within the true pelvis. They also reported many individuals having extremely bad posture without visceroptosis. Flint[6] stated that in a study of many living patients and one hundred post mortems he had found a mesentery of the ascending colon to be a normal condition. Moynihan[7] emphasized the fact that extremely free mobility of the ascending colon may exist without symptoms. Walton[8], Osgood, Harris and Chapman and many other writers have observed that ptosis of abdominal viscera even to an extreme degree is compatible with excellent health.

It would appear that dysfunction of ptosed viscera and the characteristic symptoms of visceroptosis are dependent upon some other factor than malposition. Whether this is a fatigue syndrome as stated by Bryant, toxaemia, stretching of mesenteric nerves or other cause is still undetermined.

It is not my purpose to question the therapeutic value of accepted conservative methods of treatment of visceroptosis. The remarkable improvement observed in many of these patients following rest, a fattening diet, exercise, hygiene

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†For record and address of author see "This Week's Issue," page 1261.

and orthopedic methods has done much to discourage the ill advised surgery for this disease of two decades ago.

Harris and Chapman and other writers have observed, that improvement in symptoms following exercises which develop the abdominal muscles results from an increase in intra-abdominal pressure and improved muscle tone. They have rarely observed improvement in the position of the ptosed viscera.

General Clarence Edwards has stated "that our citizen's training camps, R. O. T. C. and other similar reserve organizations for military training have justified their existence if for no other reason than that they have gotten men's chests off their stomachs and their bellies out of their laps."

There are however a small class of ptotic patients with intractible symptoms, who are unrelieved by any method of conservative treatment. A certain number of these chronic sufferers are relieved and even cured by surgery. A survey of recent literature would suggest that the number of patients with visceroptosis subjected to operative treatment depends upon the enthusiasm of the surgeon whom they consult.

Moynihan has stated that, in their attitude toward the surgical treatment of enteroptosis surgeons may be classified under two heads, the fervid intemperate advocates and the intolerant disbelievers with an embittered prejudice against operative treatment. He further states that he believes in the occasional necessity of operative treatment of this disease.

The fixation operations which have survived the condemnation of the intolerant disbelievers appear to be caecopexy and gastropexy. Waugh[10] reported in 1919—one hundred and eighty cases in which he had done a fixation of the ptosed caecum. Small[11], Buchtel[12], Beall[13], Walton and others have recorded series of patients treated by caecopexy. In 1922 Perthes[14] published a series of twenty-three cases in which gastropexy was done and in the same year Rudolf[15] reported sixty-six cases. Walton, Coffey, Horsley[16], Goebell[17] and many others recommend gastropexy in certain cases.

Vanderhoff and Davis in 1923 reported a series of twenty-eight cases of visceroptosis with chronic dilatation of the duodenum resulting from the downward pull of the mesenteric vessels squeezing the duodenum against the aorta and vertebral column. The treatment consisted in the Schintzler position, diet, hygienic measures and duodenojejunostomy in patients not relieved by these methods. Sir Harold Stiles[19], Walton, Charles Mayo and others have also reported similar cases treated by duodenojejunostomy.

Victor Bonney[20] in 1926 described an operation for visceroptosis in women in which he suspended the uterus across the front of the lower abdomen, cutting off the utero-vesical pouch from the general peritoneal cavity. He also sutured the caecum and sigmoid to the broad ligaments. Fig. 1.

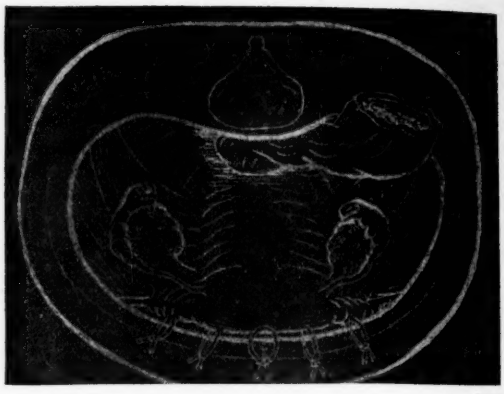

FIG. 1. Bonney Operation.

It would appear that there are certain very definite reasons for the rather general disfavor in which the various fixation operations for visceroptosis are held. Suturing a ptosed, atonic viscus firmly to the abdominal wall interferes with its function and fixes it when it should be freely movable. Schneider[21] has shown by experiments on dogs that the portion of a hollow viscus not fixed frequently stretches out and drops down, further interfering with its function. A common complication is failure of the sutures to hold allowing the adhesions to stretch, resulting in a condition much worse than that which preceded the operation.

The physiological principles upon which conservative methods of the treatment of visceroptosis are based are rest and support to the ptosed viscera. Rest in bed and increased nutrition, exercises to develop the abdominal muscles and increase intra-abdominal pressure, ptosis belts and pads are illustrations of the clinical application of these principles.

The principle of constructing a support beneath ptosed viscera by operative means has been observed in but one instance in the literature, the operation described by Victor Bonney. This operation however does not prevent a prolapse of viscera into the cul-de-sac of Douglas. The operation devised by Moschowitz[22] for prolapse of the rectum provides a support for the viscera and shuts off the pelvis from the abdominal cavity. Buchtel has reported cases of visceroptosis in which the Moschowitz operation was done with satisfactory results.

From a study of the Moschowitz operation the idea presented itself that a shelf or diaphragm could be constructed across the inlet to the pelvis which would raise the ptosed viscera to a

higher level and prevent a recurrence of the prolapse into the cul-de-sac of Douglas. An opportunity would thus be afforded the viscera to regain their tone without interfering in any

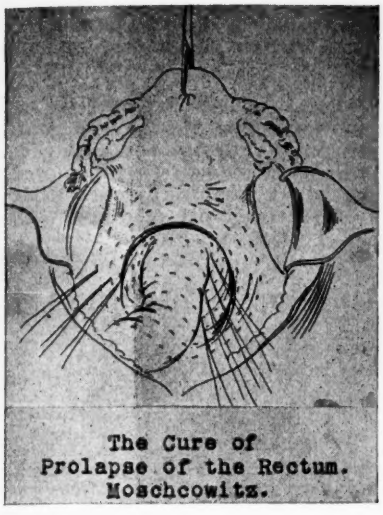

FIG. 2. Moschowitz Operation.

way with their function. The objectionable features of the fixation operations would thus be obviated.

The suspensory ligaments of the ovary are admirably adapted to the construction of a shelf or diaphragm across the inlet of the pelvis. In the individual with visceral ptosis these structures are very strong, rather lax folds. They are composed of parietal peritoneum and pelvic fascia and extend from the broad ligaments just beneath the ovaries to the lateral walls of

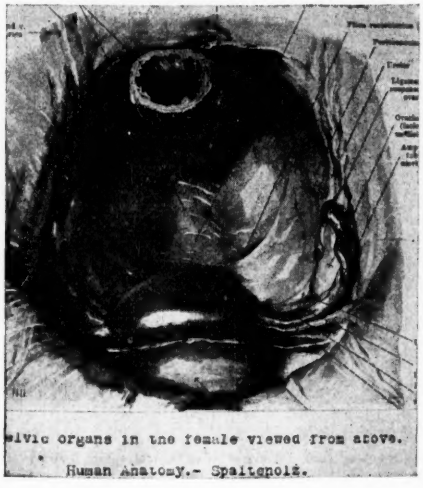

FIG. 3. Spalteholz Pelvic Organs.

the pelvis near the upper end of the sacro-iliac joints. By seizing these folds with hemostats they may be drawn out to the mid pelvic line without tension. Fig. 3.

Moschowitz has shown that external to the peritoneum there is a continuous layer of fascia throughout the entire abdomen and that the viscera and large blood vessels lie upon this fascia. While this structure bears different names in various locations, it may be all considered a part of the transversalis fascia. Below the pelvic brim it is designated the pelvic fascia.

According to Cunningham's Anatomy the measurements of the bony pelvic inlet in women are antero posteriorly 4⅜ inches and transversely 5½ inches. The average measurements of the pelvic inlet taken with the patient in the Trendelenberg position and the uterus suspended show the antero posterior distance between the posterior surface of the uterus and the recto-sigmoid to be about 2½ inches. The average transverse measurement of the pelvis in the ptotic patient between the lateral folds composed of ovarian ligaments, peritoneum and fascia is about 4 inches. The actual size of the proposed diaphragm therefore across the pelvic inlet would be 2½ by 4 inches. That is the fascia from each lateral wall must be drawn out about 2 inches to meet the fold from the opposite side in the mid pelvic line. The ease with which the pelvic peritoneum and fascia can be drawn out to the mid line is a principle upon which the technique of the Moschowitz operation is based.

The following technique of the operation for visceroptosis which I have used in five cases, I submit for your consideration.

The patient is anaesthetized in the high Trendelenberg position so that the viscera gravitate toward the upper abdomen. The usual paramedian suprapubic incision is used. The appendix is removed. If the tubes and ovaries are normal they are not disturbed. The uterus is then suspended by the method described by Victor Bonney. A suture of chromic gut is passed downward through the fascia of the rectus muscle on each side of the median line entering the abdomen through the round ligaments at the point of emergence from the abdomen. It then transverses the length of the pelvic portion of the round ligament and is brought up through the rectus fascia. Another suture on each side of the median line is passed through the rectus fascia and the fundus of the uterus. On tying these four sutures the utero-vesical pouch is entirely shut off from the abdominal cavity.

The suspensory ligaments of the ovaries with the underlying pelvic fascia are then seized near their attachment to the broad ligament, brought across the posterior surface of the uterus to the median line and sutured to the uterus with silk. The ligaments are then sutured together with silk in the median line upward to the rectosigmoid just below the promontory of the sacrum. If a loop of bowel has dropped down into the pelvic cavity, it is drawn upward and the folds of parietal peritoneum and fascia are sutured about it with interruptured sutures. A diaphragm is thus

formed across the pelvic inlet which supports the ptosed viscera. Figs. 4, 5, 6.

This technique embodies some of the features of the Mayo operation for perineal hernia[23] and the Moschowitz operation for prolapse of the rectum. It is however much simpler than either the Mayo or Moschowitz operation and obviates the danger of sepsis, which has been a criticism of the Moschowitz operation. Figs. 7, 8.

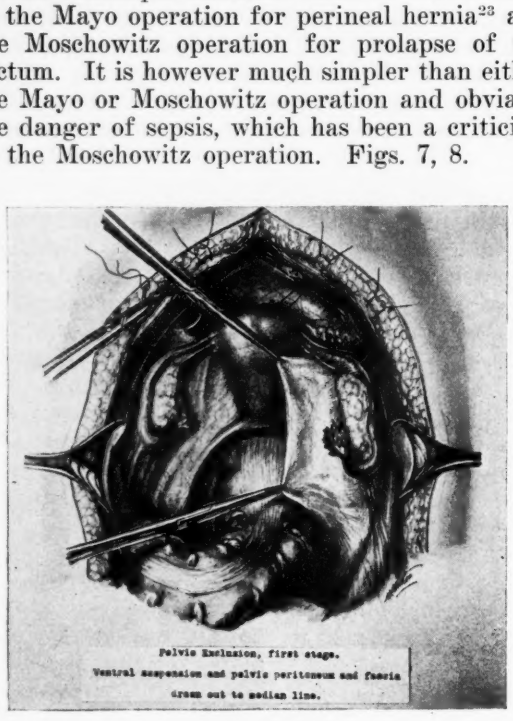

FIG. 4. First stage pelvic exclusion.

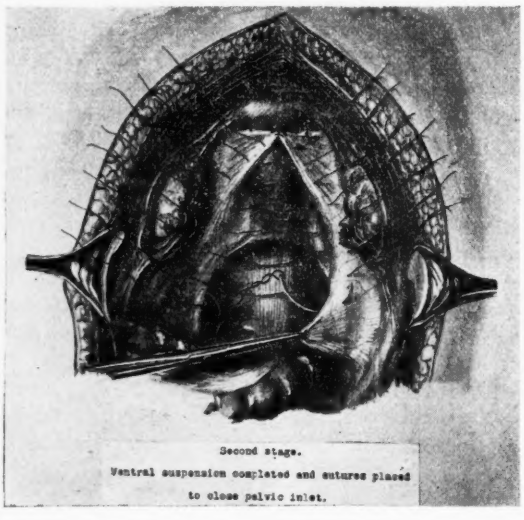

FIG. 5. Second stage pelvic exclusion.

Rest is afforded the prolapsed viscera by supporting them at a higher level without interfering with their function. In cases operated upon the distance from the bottom of the culde-sac of Douglas to the diaphragm as constructed varied from 2½ to 4 inches.

The following is a brief review of the histories of the five patients operated upon:

CASE 1: Woman, aged 31, married 10 years, never pregnant. Gastro-intestinal symptoms and general fatigue for past five years. Cholecystectomy, appendectomy and excision of ovarian cyst in another hospital three years ago with temporary improvement. Symptoms aggravated for past two years in spite of good medical care. Lower border of stomach three inches below interiliac line, caecum and transverse colon in pelvis. A typical operation was done, which was followed by marked improvement in all symptoms and a gain of twenty-five pounds in weight.

CASE 2: Woman, aged 29, married and has had seven children. Indigestion and severe constipation for past four years with frequent attacks of pain in left lower quadrant which were diagnosed salpingitis. Lower border of stomach two inches below promontory of sacrum. At operation the tubes were

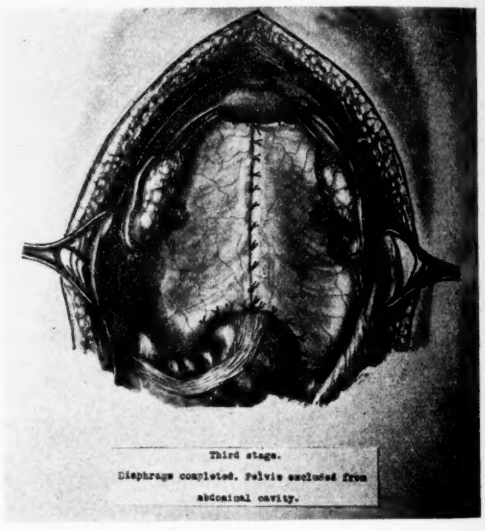

FIG. 6. Diaphragm across pelvic inlet.

excised for chronic salpingitis and a typical pelvic exclusion done. The patient was relieved of her gastric symptoms and has gained fifteen pounds.

CASE 3: Unmarried woman of 34. Indigestion, constipation and attacks of severe pain in right lower quadrant for past fifteen years. An anaemic, emaciated school teacher, who is forced frequently to give up her work and spend weeks in bed. The lower border of the stomach was two inches below the promontory with the transverse colon and caecum in the pelvis. At operation, the appendix was removed and a typical operation for the ptosis done. She resumed teaching four weeks after the operation and has continued since. She eats anything, has no constipation and has gained twenty-eight pounds.

CASE 4: Woman of 34, married and has five children. Severe constipation and indigestion for the past three years with gradual loss of twenty pounds weight. Appendectomy, right salpingectomy and ventral suspension in another hospital. Has been treated medically in many hospitals. X-rays showed the lower border of the stomach and transverse colon below the promontory of the sacrum. At the operation the left tube was removed and a typical operation carried out. There has been a gain of fifteen pounds in weight and almost complete recovery from her gastro-intestinal symptoms.

CASE 5: Woman aged 33. Married but has borne no children. Has been troubled with gas in her stomach and severe constipation for years. Has had severe dysmenorrhea for past ten years. Frequent attacks of pain in right lower quadrant of late.

X-rays show greater curvature of stomach at promontory with colon in pelvis. The usual technic was carried out at the operation. Her gastro intestinal symptoms are relieved but an intractible mental condition has developed.

In four of these patients there has been a marked improvement in the general physical and mental condition. There has been a gain in weight from 12 to 25 pounds and almost complete recovery from the gastro-intestinal symptoms. In the fifth patient there has been considerable improvement in the gastro-intestinal symptoms but an impairment of her mental condition. Post operative x-rays have been taken in all of these patients in the erect position and show the viscera lying above the true pelvis. There is no evidence of relaxation or giving way of the diaphragm.

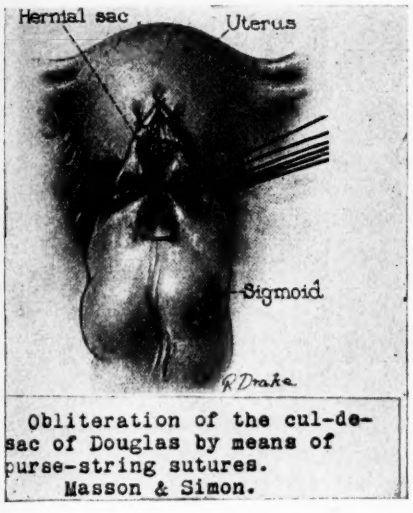

FIG. 7. Mayo operation for perineal hernia.

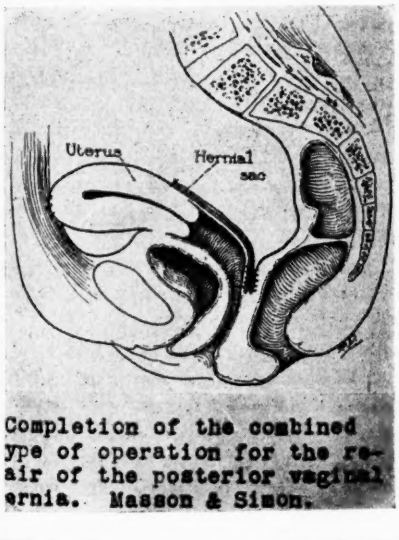
Uterus
Hernial sac
Completion of the combined ype of operation for the re-air of the posterior vaginal ernia. Masson & Simon.

FIG. 8. Mayo operation for perineal hernia.

In conclusion, it would appear that a small number of patients with visceroptosis are not relieved by the accepted conservative methods of treatment.

In spite of the condemnation of suspension and fixation operations, some of these rather hopeless, ptotic invalids have been relieved by such operations.

An operation is herewith presented which obviates the objectionable features of suspension and fixation of ptosed viscera. The physiological principle of the operation is rest to the prolapsed organs by raising the level of their supporting structures or excluding the pelvis from the abdominal cavity. The operation devised is an adaptation of the Mayo operation for perineal hernia and the Moschowitz operation for prolapse of the rectum.

Five cases operated by this method are briefly reviewed.

The excellent results observed in four of the five cases is suggestive of the value of this operation in the type of patient presented.

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Discussion

Dr. G. W. W. Brewster: Dr. Osgood insisted that I should open the discussion on this subject in spite of my assuring him that I had had no personal experience in the surgery of visceroptosis.

Dr. Moore certainly deserves great credit for the very interesting and comprehensive way that he has described the condition, and the very conservative view that he has taken as to the indications for surgical treatment.

Personally, I do not feel much enthusiasm for the surgical treatment of any of the so-called

functional diseases. The operation described certainly offers a very reasonable method of obliterating the posterior cul-de-sac.

DR. G. C. WILKINS: Gentlemen, I rather hesitate to discuss this after Dr. Brewster's discussion. I have felt, as Dr. Moore stated in the beginning of his paper, that there were few, if any, patients with visceroptosis who needed operation, and I have not personally operated upon any except for plication of the stomach in one case that I remember, and not infrequently plication of a large, mobile cecum, which condition is sometimes found in association with indefinite right lower quadrant pains and discomfort in neurotic and nervous women of the thin type.

Every patient who complains of symptoms which could be attributed to ptosis should, of course, be treated first by belts, building up, and other hygienic methods to overcome the condition which may exist and which may, or may not, be the cause of symptoms which the patient complains of.

I have found a very unfortunate condition reported by patients occasionally as a result of ill-advised x-ray examinations. These patients go of their own accord, usually, for a complete x-ray examination, or rather a gastro-intestinal x-ray examination, and the x-ray man tells them with some degree of solemnity that their stomach has dropped or their transverse colon is down in their pelvis. This is very unfortunate because the patient never forgets that and she goes around from one place to another trying to obtain aid for that condition. This complaint of hers should have been prevented by not mentioning it to her. I don't think any patient should be told that she has a loose kidney or a low transverse colon, or anything of that sort, because she never forgets it and she is much better off without knowing it. In the line of prevention of symptoms this should always be avoided.

Another prevention of trouble that might be attributed to a condition of this sort is the education of people to hold up their bellies. That is an unfortunate condition that exists very frequently among women and among a great many men. Instead of holding it up, they let it sag down into their laps and naturally the abdominal contents sag along with it. We find it more evident in people with poor musculature.

It is rather difficult for me to see how the mere closing up of the pelvic cavity, which is not very large, would hold up the viscera which are prolapsing. It seems to me that it would more or less pile them up on top of the pelvic brim but that the same ptosis would exist. I may be wrong but that is the way it seems to me from his description of the operation.

DR. F. B. LUND: When I was in the dissecting room many years ago I noticed that many of the cadavers we were dissecting had movable kidneys and I found that often you could put the kidneys way down into the pelvis. Then I wrote to the place that they came from to find out if they had any symptoms due to the extensive mobility of the kidneys, and I found they hadn't noticed any during life. So I wrote a paper on visceroptosis after looking it up and finding that movable kidney was usually merely a part of a general visceroptosis and said, "Never operate on movable kidneys unless they produce a definite symptom referable to that organ". We used to sew up movable kidneys in those days, but it is rare that we do it now. We know falling kidneys don't do any harm unless there is an aberrant artery, or some other reason, which compresses the pelvis and causes a hydronephrosis, and then we get very definite symptoms to work upon.

I have done most of these various operations on the pelvic floor. I wouldn't say that this exclusion which Dr. Moore has done should never be done, but I do think that the cases where it is going to help are very rare indeed.

I thank you.

DR. DANIEL F. JONES: Dr. Moore has presented to us a new principle in the treatment of visceroptosis. We have heard much about the plication of the stomach and caecum, and the fixation of the colon. Strange to say, the men who advocate the fixation of the stomach and colon, are in most cases the same surgeons who tell us of the dire effects of adhesions. Dr. Moore proposes to hold the intestines up rather than fix them, and if the discomfort in visceroptosis comes from the pull of the intestines upon the mesentery, and the pull of the mesenteric artery across the duodenum, or the pull of the long caecum hanging over the brim of the pelvis, one might expect relief from shortening up the distance which the small intestine, transverse colon and caecum might fall, and this Dr. Moore has done by closing the inlet to the true pelvis. This can be done, I am sure, for I have done almost the same operation by closing the deep posterior cul-de-sac in prolapse of the uterus and rectum.

Great care must be taken to avoid any opening in this diaphragm through which a piece of small intestine might be forced into the pelvis below, for intestinal obstruction would surely follow such an accident.

It is a relief to have presented an operation which will surely accomplish what the sponsor of the operation says it will do, that is, shorten the distance which the intestines can fall. The results obtained can only be determined by waiting for the end results in a series of cases after one, two or three years.

CLOSING DISCUSSION

DR. G. A. MOORE: The existence of a ptosis of abdominal viscera requiring surgical treat-

ment has been the subject of frequent discussion in the past. Probably the best known authority who advocates such treatment in the "occasional case" is Moynihan.

The general disfavor in which the surgical treatment of visceroptosis is now held, results from the crippling sequelae of the suspension and fixation operations that have been done in the past for this condition.

It would appear that of the large number of individuals with visceroptosis, a small percentage are more or less disabled as a result of this condition. A few of these patients are not relieved by efficient conservative methods of treatment, although I heartily agree with Dr. Wilkins that most cases will improve under such treatment.

It is also a well-known fact that unless x-ray studies of patients with visceroptosis are carefully made, they may be very misleading.

In five of these patients who were not relieved by conservative treatment, I have provided a support beneath the ptosed viscera by constructing a diaphragm or shelf across the inlet of the pelvis. The principle of providing mechanical support by operative means for ptosed viscera, would appear more logical than suspension or fixation methods.

A MOVEMENT TO COMBAT THE EVIL OF PATENT MEDICINE ADVERTISING

The Boston Better Business Bureau is making a study of patent medicine advertising with the intention of taking such action as the facts may warrant.

This organization has been of great value in exposing fraudulent business ventures and has driven some irregulars from the field.

Patent business advertising has caused loss of health which is a greater misfortune than financial disaster.

Ethical physicians have often felt outraged by the advertisements of wealthy business organizations and cannot understand how presumably intelligent and humane persons can be satisfied with the financial returns of palpably fraudulent claims for the efficacy of some combinations of drugs. To the medical profession the horrible traffic in so called consumption and cancer cures is a demonstration of depravity little short of burglary. The armed housebreaker has no sympathy for a possible victim. The concern or man that takes money from an ignorant victim of disease through alluring but worthless advertisements may be an accessory before the fact of loss of life through delay in securing reliable treatment.

Doctors have found that protests against fraud only accentuate the suspicion that selfish interests prompt the criticisms so that an organization not allied with medicine can have much influence in combatting this sort of fraud. There is a great field in this campaign and much good will we trust be accomplished.

WEEKLY HEALTH INDEX

Summary

Telegraphic returns from 65 cities with a total population of thirty million for the week ending June 1, indicate a mortality rate of 12.8 as against 13.2 for the corresponding week of last year. The highest rate (22.5) appears for Memphis, Tenn. and the lowest (7.1) for Somerville, Mass. The highest infant mortality rate (129) appears for Youngstown, Ohio, and the lowest for Des Moines, Iowa and Lowell, Mass., which reported no infant mortality.

The annual rate for 65 cities is 14.9 for the twenty-two weeks of 1929, as against a rate of 14.2 for the corresponding weeks of 1928.

EXPERIENCES WITH SPINAL ANESTHESIA*

BY WILLIAM A. R. CHAPIN, M.D.†

TO those who use spinal anesthesia in a moderate sized hospital the question of complications is a pertinent one. In a large municipal hospital, casualties are expected; particularly is this so in those places where facilities for experimental work are not lacking. In the smaller cities, situated away from recognized medical centers, accidents, mistakes in judgment and casualties as regards morbidity or mortality are more or less the talk of the town. With this situation in view I would review a perhaps typical experience, covering a four year period, with 100 cases of spinal anesthesia carried out according to the Labat technique. The cases selected for the most part were those in very bad surgical condition or with contra indications toward an inhalation anesthesia, or both. There were no deaths and I attribute this to the studied and painstaking 1-2-3 method of adhering strictly to the established teaching: i e, *never to give spinal with the systolic blood pressure under 100, never to give it to children;* always to immediately put the patient in the Trendelenberg position, to use only the glass ampules of neocaine, under aseptic conditions, with uniform sized needles and apparatus; and to maintain the Trendelenberg position for at least three hours after operation. During the past year, the first and second of these directions have been eradicated. I still adhere to them, however, for I must not have a casualty.

Despite all this care I am led to believe that an honest, straightforward summary of complications in the use of spinal anesthesia will often prevent some of the following sequellae, which, while startling to the observer for the first time, are in no way dangerous to life or convalescence.

1. Headache has been noted in two cases, but this information was only elicited after questioning. If the feet are kept elevated for six hours, I do not believe it is a factor.

2. Vomiting occurs once in ten times, though retching is more frequently met with. In abdominal cases, pulling on the plexus, and peritoneal tug may easily extend its sensation to points above the area of anesthesia.

3. Post-operative bleeding because of failure to notice bleeding points due to lowered blood pressure has not been encountered. The abdominal wounds are dryer than normal. A confrere has noted post-operative bleeding after second stage prostatectomies which were bagged. This has not occurred in my experience and I believe it to be but a coincidence.

4. Failure to get anesthesia only occurred in one case; in this instance no spinal fluid was evacuated and, believing the "dry tap" theory might be possible, the neocaine was diluted in salt solution and injected. That was not a true failure. Sucking back three times while injecting the solution will tell the operator when the needle has pulled out of the dura.

5. No patient defecated on the table, though one patient, an emaciated male, became quite depleted due to a persistent watery diarrhoea for 3 days following a herniotomy. This promptly stopped after 1500 cc. of saline were given under the skin. It would seem that dehydration and loss of sympathetic tone became more marked with each bowel movement and that a sort of vicious circle was established which was promptly stopped by fluid intake and hydration of the nerve cells and body tissues.

6. Duration of anesthesia has never been less than 1 hour, and has extended to 1 hour and 40 minutes.

7. Anesthesia shock, with heart, bronchial, and kidney manifestations as well as blood sugar changes, has been vastly minimized. The post-operative exhaustion of nausea and vomiting has been alleviated. Surgical shock has been lessened for the bad surgical problem more than by any other method of anesthesia due to the constricted intestines, and the decreased necessity of packing away the abdominal contents with sponges, giving a flat, convenient abdomen to work in. If one believes Crile's theory of anoci-association, the impulses to the brain are stopped in the cord by spinal though not stopped under general anesthesia.

8. There has been no nerve paralysis in this small series nor any sensory disturbances following the injection. Infection has not been encountered. One is reminded of a meningitis case in which 27 spinal taps were made without any difficulty, the patient recovering.

9. There have been some tremendous blood pressure drops. One case, like several of its fellows, went from 180/90 to 49/35. The intensity of drop occurs from 20 to 30 minutes after the injection and is stationary for from 10 to 20 minutes, followed by a gradual rise. Despite the reports on ephedrin, I have not found that it has had any effect on the blood pressure during the drop. It is true that ¾ gr. given 40 minutes before injection will cause a rise in pressure at the zero hour and again 2 hours afterwards the patient will show a higher reading than is normal for that individual.

It is hard to understand why, since the splanchnic area of blood vessels is engorged during this anesthesia, the effect of ephedrin on the upper vessels and extremities, in contracting the vessels there, is not to push more blood out of

*Read before the American Association of Regional Anesthetists at the Academy of Medicine, New York City, April 2, 1929.

†For record and address of author see "This Week's Issue," page 1261.

them into the already dilated splanchnic area. The pharmacologists tell us that the effect of this drug is on the end plates and hence not influenced by spinal anesthesia. If so, why do we get any blood pressure drop at all during this type of work?

10. An assumed failure to get anesthesia by the spinal route may prompt the surgeon to try it again. Once committed to spinal anesthesia and the puncture having been made, however, no second effort should be undertaken on the same patient on that day. With the patient in the sitting position it is possible for a cerebral ischemia, followed by death in four minutes, to occur.

This series includes four successful nephrectomies and I believe that any operation below the diaphragm can be successfully done by this method.

Though the writer is committed to the Labat technique and is very well satisfied with the results, the following closing paragraph applies to any spinal method.

After years of patient endeavor by men whose names are too numerous to mention, this method of anesthesia has been established. One surgeon's unfortunate experience may set the medical thought of that community back from five to ten years. Every safeguard is erected to prevent errors in surgical work and an inexperienced novice would never be allowed to venture into the operative field without some training, and able help near at hand. By what type of reasoning do men attempt to use spinal anesthesia with only the preparation of perhaps a half hour's reading? Once in the spinal canal the solution cannot be recalled. A single unrecognized mistake will cost a life and blacken the story of a marvelous asset to our surgical work. If accidents occur in the experience of individuals who have fully prepared themselves by post graduate instruction, what will be the appalling story of spinal anesthesia in the hands of those who, wholly unprepared, proceed unaided in this field until they have an accident which, because of their lack of knowledge of the cause, is attributed to spinal anesthesia?

In closing let me urge those who would do spinal anesthesia to give it a fair chance and, rather than trust to luck and the Almighty—*Be Prepared.*

THE PUBLIC HEALTH PROBLEM OF THE BARBER SHOP

For several years groups of barbers have shown a desire to have a board of registration of barbers established in Massachusetts. Claims have been made that objectionable conditions are to be found in some barber shops.

Dr. George H. Bigelow, Commissioner of Health, has been directed under a legislative resolve to institute an investigation of barber shops in Massachusetts and report to the legislature. The action of the legislature will probably depend on the findings of the study which will be conducted under the supervision of Dr. N. E. Newbury, formerly of the public health department of Scranton, Pennsylvania. Associated with him are Drs. J. H. Blaisdell, E. L. Oliver, A. W. Cheever, W. T. Garfield and R. Jacoby all recognized dermatologists.

Whether skin diseases, syphilis or other communicable diseases are contracted in barber shops more than in other places is open to question, but if there is evidence of some danger in these shops it will be a comfort to patrons to know that suitable precautions will be taken to minimize these dangers.

There are often esthetic questions in the minds of frequenters of these shops which determine patronage but these are not public health problems.

In large cities some of the more progressive establishments maintain systems of sterilization of the tools employed which seem to meet the wishes of patrons and are safeguards against skin infection.

A witty commentator will find opportunity for facetious remarks in a discussion of the subject.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 15241

PAIN IN THE EPIGASTRIUM AND LEFT CHEST WITH COUGH

MEDICAL DEPARTMENT

An unmarried American woman sixty-nine years old, a working housekeeper, entered February 6 complaining of pain in the epigastrium, vomiting and increasing weakness of eight months' duration and pain in the left chest with cough of three weeks' duration.

The previous July she began to have stabbing intermittent pain at the lower border of the sternum and in the midepigastrium, radiating to the lower abdomen, occurring almost daily, sometimes seven or eight times a day, at any time during the day, and lasting about ten minutes. It was not related to meals, but seemed to be associated at times with a gnawing empty feeling in the stomach region momentarily relieved by eating. Early in August she began to have sudden but not projectile vomiting, almost invariably in the evening, once or twice an evening. The vomitus was small in amount, greenish, very acid, not bloody. Medical treatment gave no relief. She became afraid to eat, and lived almost entirely on liquids. For ten days she took nothing but a little tea. Then by advice of another physician she followed a diet of milk with lime water, with powders containing bismuth and other things between times. She felt better, but after a while began to have diarrhea with three or four movements at night, making her lose sleep. She improved until she could take potato and broth occasionally, but if she ate anything heavy began at once to vomit again. The pain became much less severe. She grew steadily weaker, however. During the past month her abdomen had seemed to increase in size and felt extremely hard. She passed much gas with her movements. She noticed a griping sensation in her rectum. She developed a distaste for the milk mixture; it seemed to stick in her throat. She had been troubled with hiccups. For three weeks there had been an area of tenderness in her left chest just below and to the left of the nipple. After coughing and raising considerable thick green sputum the chest pain was temporarily relieved. She had perhaps four or five coughing attacks a day severe enough to end in vomiting. She continued to be up and supervise work in the house in spite of weakness. Since the onset she had had increasing dyspnea and pounding of the heart. She had lost about eight pounds. Her present weight was 108.

Her father died of tuberculosis. She had not been exposed since his death, fifty-six years ago. A grandmother died of heart disease.

She had always been well and active. For most of her life she had had indigestion once or twice a year after eating certain foods. Her bowels had always been irregular, sometimes not moving for two or three days. At times she had been told that her skin was yellow. For six months she had occasionally had burning micturition. Recently her urine had been very dark.

Clinical examination showed a poorly developed and nourished, cachectic woman with evidence of recent loss of weight. Skin dry; senile keratoses. Mucous membranes pale. Teeth all false. Scoliosis. Lungs hyperresonant, with emphysematous breathing. Dullness with prolonged expiration at the right apex front and back. Occasional bubbling râles at the right base. Apex impulse of the heart not seen or felt. Left border of dullness 8 centimeters to the left of midsternum, 3 centimeters outside the midclavicular line. Right border 2 centimeters to the right, supracardiac dullness 3 centimeters. Sounds and action normal. A rough systolic murmur heard all over the precordium but best at the apex. Radials and brachials palpable and tortuous. Blood pressure 130/80 to 88/68. Abdomen distended. Liver palpable four fingerbreadths below the costal margin, very hard, nodular and tender. Shifting dullness. At vaginal examination a soft movable polyp was felt on the cervix and a small soft mass on the left vaginal wall, possibly a cyst. Marked edema of the legs and ankles. Pupils and reflexes normal.

Urine: normal amount, specific gravity 1.020 to 1.026, the slightest possible trace of albumin at one of four examinations, bile at two, many leukocytes at all, loaded once, (no catheter specimen). Blood: 19,800 to 32,650 leukocytes, 86 per cent polymorphonuclears, hemoglobin 80 per cent, reds normal. Hinton negative. Icteric index 8. Rosenthal liver function test: 22 per cent retention at the end of half an hour. Fasting contents of stomach: 10 cubic centimeters of yellow material, no free acid, total acid 25, guaiac negative. Test meal: 20 cubic centimeters of yellow material, free acid 12, total acid 22, guaiac negative. Stools negative at three examinations to February 18 except for questionable pus once.

Temperature 95° (by mouth) to 98.8° (by rectum). Pulse 64 to 102. Respirations 13 to 35; normal except on three days.

X-ray examination with a barium meal was done in the prone position. The stomach was empty at six hours. The head of the motor

meal was in the ileum. The stomach appeared normal. The duodenum was large, smooth in outline, and not spastic. The small bowel seemed large, and peristalsis was sluggish. Chest examination showed the diaphragm rather high on both sides, especially on the right. Respiratory excursion on the right was markedly limited. The larger lung markings above the right diaphragm were prominent. There were no definite areas of consolidation. The aorta was markedly tortuous. The apices were clear. A barium enema passed to the beginning of the sigmoid flexure, which showed marked spasm; the patient was unable to retain the enema. A second examination with an enema showed a delay at the rectosigmoid junction. At this point there was an irregular constriction about five centimeters in length, with considerable delay. The barium passed this point and flowed to the hepatic flexure. The splenic flexure was not completely filled out. The barium would not pass beyond the hepatic flexure. After administration of amyl nitrite the splenic flexure filled well. The barium passed to the cecum, which was normal in shape and position. At no time however did the constriction of the sigmoid fill out.

The patient had severe constipation. Proctoscopy done February 15 showed an obstructing lesion at the rectosigmoid junction, not definitely ulcerated; but the bowel was so full of barium that the examination was not satisfactory. The jaundice increased. The patient's general condition grew worse. She became incontinent, disoriented, then practically comatose. February 28 she passed a gray stool with a very strongly positive guaiac. That day she died.

Discussion

by Richard C. Cabot, M.D.

Note on the History

I take it that since the onset of the stomach symptoms there has been another definite set of symptoms, that is pain in the left chest with cough. Here we have two groups of symptoms which have apparently no connection. The first might be associated with some local lesion (carcinoma or ulcer), or such a condition as nephritis or tuberculosis, which will indirectly start up trouble in the stomach. The other group is described as pain in the chest relieved on raising sputum. I do not see how we can connect these two.

Notes on the Physical Examination

1. We still have not accounted for that pain in the chest or cough. The chest examination does not explain it.

2. The description of the liver is enormously important if true.

3. I do not see why we should pay any attention to the data given on the vaginal examination.

4. The liver function test shows more retention than we should have in half an hour.

5. The essential thing in the report on the fasting contents of the stomach is the lack of free acid.

Will you kindly take us in hand, Dr. Holmes, with the X-rays in the case?

Dr. Holmes: Perhaps we had better read the report first, because a large part of the data is obtained by the fluoroscopic examination. "In the prone position." That means the patient was not able to stand. The examination is unsatisfactory on that account. That is a normal emptying time. The barium is usually in the cecum and ascending colon at the end of six hours.

A large duodenum may mean something or nothing. It is apt to be large when there is obstruction or disease in the head of the pancreas; but it may mean nothing.

Again, the observation of the increased peristalsis in the small bowel is not of much value. It is difficult for us to draw any definite conclusion. Hyperperistalsis may mean obstruction of some sort; absent peristalsis may be suspicious of paralysis; but sluggish peristalsis means nothing.

The outline of the diaphragm on the right side is a little roughened and irregular. The relative position of the diaphragm on the two sides is not off very much.

The film gives the impression of fluid in the abdomen.

There is some addition to the abdominal contents rather than a localized process on one side.

Dr. Cabot: Can you draw any conclusions from the irregularity of the outline in the right diaphragm?

Dr. Holmes: No, I cannot. Irregularities are sometimes due to nodular livers, but it is not characteristic here.

The prominent lung markings as here mentioned do not mean very much. This line running across the chest on the right is thickened interlobar septum. A definite thickening here means pleurisy. It is quite common in tuberculosis and carcinoma. Occasionally the normal septum shows.

A Student: In malignancy is thickening common because of the extension of the growth into the septum?

Dr. Holmes: Yes.

The aortic knob comes over pretty well to the left and is quite distinct. Under the fluoroscope we were able to rotate the patient and determine the degree of widening of the loop. There is no doubt some arteriosclerosis. The high position of the diaphragm and the pushing up of the heart would bring the knob out and make it appear more tortuous than it is.

Inability to retain the enema is always suggestive of disease. The average person properly

prepared has no trouble in retaining the type of enema we give. Any obstruction of the bowel is likely to cause the patient to expel the enema.

We use amyl nitrite to differentiate functional and organic stricture. In the colon it works well and the action is immediate. We do not send the patients away to be prepared with atropin. It is very important to have the patients lying down when giving amyl nitrite.

In the region of the splenic flexure there are bubble-like areas which could be due to a growth in the bowel or pressure from the outside or fecal matter. We have to rely wholly on the record of the man who made the examination with the enema.

DR. CABOT: Then it comes down to the suggestion of stricture in the sigmoid and a high position of the diaphragm, especially on the right? Otherwise, nothing?

DR. HOLMES: There is some evidence of carcinoma of the colon.

DR. CABOT: I am apt to forget how much gastric symptomatology you often get from intestinal disease. We have seen a number of mistaken diagnoses of gastric carcinoma when there was carcinoma lower down. Perhaps this is such a case.

This patient had severe constipation. With proctoscopy showing obstruction in the sigmoid and with the absence of any evidence for diverticulitis, it makes the diagnosis of carcinoma a pretty sure one. Carcinoma of the sigmoid, then. What else? She has a nodular liver, as has been stated. We have no reason to suspect sclerosis or syphilis in this case. With the above information plus jaundice, which is mentioned as increasing at the end, plus bile in the urine, which substantiates it, we can say there are cancerous metastases to the liver. Need we say anything else? Could she have any metastases to the lungs, Dr. Holmes?

DR. HOLMES: She has nothing characteristic of metastases. There is some evidence of thickening of the interlobar septum.

DR. CABOT: It would be logical if we could find in the lungs signs suggestive of metastases there. In a good many X-rays we have seen thickening of the interlobar septum and nothing in particular found at autopsy.

Although the acid was low, she did have acid in the test meal. There was said to be fluid in the abdomen, which is very likely due to metastases in the glands at the root of the mesentery. I think we have reason to suspect metastases there. What Dr. Holmes told us about the aorta makes it clear that there is arteriosclerosis, which would be natural in a woman at her age. This has not any particular significance.

A STUDENT: How about a heart lesion?

DR. CABOT: I see no evidence of a heart lesion. There was a systolic murmur at the apex and enlargement of the heart, both of which are natural in a woman of her age.

A STUDENT: How about the edema of the legs?

DR. CABOT: That is often present in carcinoma as it is in cirrhosis. I believe it is due to the metastases found in the root of the mesentery.

A STUDENT: Might the leukocytosis be explained by a cystitis or a pyelitis?

DR. CABOT: As we have no catheter specimen the leukocytes are not of much diagnostic value. We often have cystitis without leukocytosis. I think the leukocytosis is due to carcinoma of the liver.

A STUDENT: Is cancer compatible with a high hemoglobin and red count?

DR. CABOT: Yes. It is not uncommon in malignant disease. We have much to learn about the subject; why in some cases of cancer we have a normal blood count and in some cases a low red blood count. With carcinoma of the breast there is no anemia, or very little.

A STUDENT: How about the pain in the chest and the green sputum? Was there some chronic condition there?

DR. CABOT: If we could suppose a little nodule of malignant disease in the bronchus to produce obstruction and so abscess, we could explain the chest symptoms. The difficulty is that Dr. Holmes says there is no such evidence. He finds thickened interlobar septum, but no other abnormality.

X-RAY INTERPRETATIONS

Barium meal. The findings are those of delayed motility. No definite organic disease is demonstrated.

Chest. There is no evidence of metastases. The high position of the diaphragm may be due to a process below it.

First barium enema. No definite pathology could be demonstrated, but the spasm of the sigmoid is suggestive of some organic lesion.

Second barium enema. The findings are consistent with carcinoma of the rectosigmoid junction.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Metastatic malignancy of liver.
Probable carcinoma of colon.

DR. RICHARD C. CABOT'S DIAGNOSIS

Carcinoma of the sigmoid.
Metastases to the liver and the root of the mesentery.
Arteriosclerosis.

ANATOMIC DIAGNOSES

1. *Primary disease.*

Adenocarcinoma of the common bile duct.
Metastases to liver and adrenal.

2. *Secondary or terminal lesion.*

Arteriosclerosis.

DR. TRACY B. MALLORY: This case is one of carcinoma, but not of the sigmoid. It was primary in the common bile duct. It is the only case of primary carcinoma of the common duct without severe jaundice that I have ever seen. The walls of the bile ducts from the papilla up into the liver were diffusely infiltrated with carcinomatous tissue, without however showing any point of obstruction in the lumen. There was invasion along the lymphatics through the pancreas, but the pancreatic tissue itself was normal, and I am sure it was not primary there. The mass which was seen in the X-ray film and noted with the fluoroscope was external to the intestine and consisted of carcinomatous metastases on the posterior peritoneal surface of the uterus in the posterior cul-de-sac. Most of them were small. The largest was 1.5 cm. in diameter.

DR. CABOT: Could they have produced intestinal stenosis?

DR. MALLORY: No.

The lungs were entirely negative save for fibrous pleuritis. There was no carcinoma there. We found no post-mortem evidence of infection.

DR. CABOT: Were there metastases in the liver outside of the bile duct?

DR. MALLORY: Three-quarters of the liver was replaced by carcinoma. There was a very small amount of actual liver tissue left.

DR. CABOT: In retrospect, Dr. Holmes, do you believe there was some stenosis of the sigmoid, produced from outside rather than inside?

DR. HOLMES: I think it was due to spasm.

DR. MALLORY: There is one other case*, discussed in these records a year ago by Dr. Young, which is quite similar to this. The patient appeared to have rectal obstruction by X-ray examination and proctoscopy, but autopsy showed no real obstruction, but only a small uterine myoma projecting into the posterior cul-de-sac, with no marked adhesions.

DR. HOLMES: There was no dilatation of the bowel, either above or below. In carcinoma of the bowel there is apt to be very little dilatation. One thing we did not pay much attention to was the absence of blood in the stool.

DR. CABOT: We got it in the end.

DR. HOLMES: Only after the proctoscopy.

DR. CABOT: In looking back, the leukocytosis was I suppose due to the carcinomatous masses in the liver. We often see leukocytosis with rapidly growing carcinoma of the liver, which I take it this was.

A STUDENT: Is the sigmoid movable?

DR. HOLMES: No; I do not think you can palpate it satisfactorily. I doubt very much if that defect you saw in the film was the one the examiner saw.

A STUDENT: Was this metastasis in the posterior cul-de-sac of such character that it was not picked up on pelvic examination, or was it not large enough for them to notice it at that time?

DR. MALLORY: It was a little high for that.

DR. CABOT: You say, Dr. Holmes, that amyl nitrite will relax spasm. You gave amyl nitrite in this case; and yet you think this stenosis is due to spasm.

DR. HOLMES: It did relax some of the spasm.

DR. CABOT: You perhaps did not give enough of it?

DR. HOLMES: I think the trouble is in the observation.

*Case 14272, August 23, 1928, page 382.

CASE 15242

COUGH AND PAINFUL BREATHING

MEDICAL DEPARTMENT

A married Italian bootblack forty-seven years old entered the hospital on March 15, 1929.

He had been perfectly well until three weeks before admission, when he woke one morning feeling not quite well. He had a poor appetite, a bad taste in his mouth and some unlocalized discomfort in his abdomen. He was a man previously unaccustomed to feeling ill. He took some castor oil, but this did not clear up the symptoms, at least for forty-eight hours. He vomited once quite a large amount and felt very nauseated. After this vomiting attack he sent for a physician, who visited him in his house and found his temperature to be 102°. The doctor was not sure just what was the matter, but thought that it might be influenza. The patient stayed in bed for four days. His temperature came down, the symptoms cleared up, and for about two days he felt quite well. Then two weeks before entry he had some further trouble and took to bed again, while a second physician was sent for. This time the picture took the form of severe pain in both flanks much aggravated by drawing a deep breath. He was obliged to breathe in a rapid shallow fashion because of pain on deep breathing. This persisted for several days. He developed a cough which was very troublesome because of the excruciating pain in the chest which it produced. There were small amounts of sputum which on several occasions were blood streaked. This persisted until he came to the hospital. He had to be propped up on several pillows on account of the pain on breathing. Since the beginning of the second series of symptoms he also had some pain in his legs and to a lesser extent in his arms. This seemed to be in the muscles rather than in the joints. He developed some swelling of his ankles. Two days before entry, having gradually improved, he got up, but upon getting up had a very bad attack of coughing and severe pain over both costal borders, and raised some more bloody sputum. His temperature was then 103°. The day of admission he was worse, and

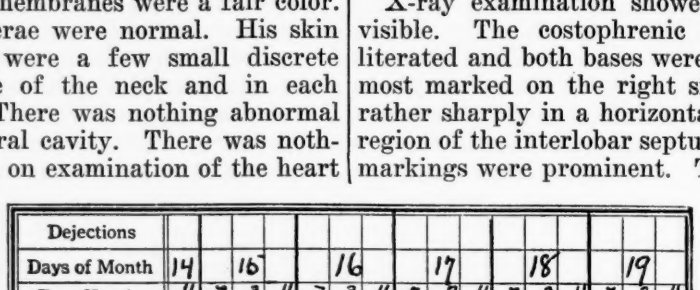
it was for this reason that he was sent to the hospital.

Physical examination showed a well developed but rather thin middle aged man who looked distinctly sick. He was sweating profusely and was dyspneic and orthopneic on account of his pain. His mucous membranes were a fair color. His pupils and sclerae were normal. His skin was clear. There were a few small discrete nodes on each side of the neck and in each axilla and groin. There was nothing abnormal about the nose or oral cavity. There was nothing abnormal found on examination of the heart except tachycardia. There was a pleural friction rub in the left axilla and dullness at the left base posteriorly with diminished fremitus and a few moist râles. There was slight scoliosis in the lower dorsal region to the left. The abdomen was held rigid, but nothing otherwise of importance was made out. There was nothing remarkable about the extremities and the muscles did not seem tender on pressure. There was no evidence of joint involvement. There was no edema.

The temperature at entry was 103.2° by rectum, the pulse 121, the respirations 22. The blood pressure was 135/75.

Urine: High gravity and showed no albumin, sugar or diacetic acid. The red count was 3,750,000, 70 per cent hemoglobin, 15,000 white cells. Differential count, polymorphonuclears 74, lymphocytes 7, large mononuclears 12, eosinophiles 6, basophiles 1. A blood culture showed no growth. Non-protein nitrogen 39. Icteric index 5. Examination of the sputum showed some gross blood but no tubercle bacilli. Stools were not remarkable. Wassermann negative.

X-ray examination showed both diaphragms visible. The costophrenic angles seemed obliterated and both bases were dull. Dullness was most marked on the right side, where it ended rather sharply in a horizontal line above, in the region of the interlobar septum. The larger lung markings were prominent. The thorax was considerably deformed. The upper portion of the lung fields appeared clear. The heart shadow appeared enlarged and the aorta tortuous.



Discussion

BY JAMES HOWARD MEANS, M.D.

We had here therefore fever with cough, hemoptysis, pain in the chest, swelling in the ankles, pain in the legs and arms but not involving the joints, and evidence on physical examination of a pleurisy, at least, on the left. We naturally thought therefore of influenza, tuberculosis, endocarditis or rheumatic infection of some sort. Typhoid fever seemed possible but unlikely, particularly in view of the leukocytosis. In the five days after entry his symptoms rapidly cleared up as did also the physical

signs in his chest. He defervesced by rapid lysis, as is shown in the accompanying chart, and his pulse returned to a normal rate. On the seventh day a white count of 20,000 was obtained, with 26 per cent of eosinophiles.

On further questioning some family history of importance was gathered. One week after the patient first came down with his malady three out of six of his children became ill with fever and pains in the arms and legs. One boy was perfectly stiff all over and one other had a puffy face. His wife and three children escaped. The patient lives in the country just outside of Boston in his own house with a small amount of land, and he told us that he had recently raised a hog and slaughtered it himself. The whole family had partaken of its pork, eaten directly after the slaughtering on three occasions a week prior to the onset of his symptoms. In other respects the family and past history seemed irrelevant.

In view of this story of the epidemic in his own family and the history of recent eating of pork from a particular hog by all the family, the diagnosis of trichiniasis was of course strongly suggested. As a matter of fact the doctor who had sent him in had made this diagnosis and had sent some pork of the animal in question to the State Board of Health, where it had been found trichinous.

On the strength of this evidence there seems nothing to stand in the way of a positive diagnosis of trichiniasis even without a biopsy on his muscle, which was not made because of his rapid recovery.

The chief points of interest and the reason for reporting the case are the pulmonary complications and the relatively low eosinophile count at entry. The resemblance to an acute primary infection of the lungs and pleura is striking, and the lesson that trichiniasis is to be considered in the differential diagnosis of obscure acute infections is brought home. In another case with sustained fever recently seen in this hospital the diagnosis of trichiniasis was never suspected until an eosinophilia had been found. Some years ago Minot and Rackemann[1] drew attention to the frequency of respiratory manifestations. The present case is one in point.

The low eosinophile count at entry aroused much interest, but seems consistent with the recent observations of McDonald and Waddell,[2] who found that in patients with complicating infections such as pneumonia, infections which as we know always drive the eosinophiles down, eosinophilia may be absent. This was the case here. While the respiratory picture was present there was little or no eosinophilia. After it had disappeared an eosinophilia appeared.

NOTE BY DR. ELBERT L. PERSONS*

When he arrived at the hospital this patient at first glance seemed very sick, having the dusky cyanosis of a terminal bronchopneumonia and very marked respiratory difficulty. Examination failed to show any evidences of general toxemia, there was no evidence of circulatory failure, and during the examination of the chest it began to seem that the cyanosis and apparent dyspnea were explainable on the basis of extremely painful respiration. This factor had combined with fatigue and loss of sleep to make him appear dangerously ill. Language difficulties resulted in considerable delay in getting a satisfactory history, and until this was obtained the case was something of an enigma.

DIAGNOSIS

Trichiniasis.
Bronchopneumonia.

REFERENCES

1 Minot, G. R., and Rackemann, F. M.: Am. Jour. Med. Sci. 150:571, 1915.
2 McDonald and Waddell: J. A. M. A. 92:449, 1929.

*Recently senior interne on the East Medical Service.

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THE QUESTION OF A SUBURBAN HOSPITAL

THE careful study of the need of hospital facilities in Wayland made by Dr. Lombard and Mrs. Giblin of the Massachusetts Department of Public Health and published in the JOURNAL of May 23 deserves the attention of all physicians and of the general public. Several fundamental facts are clearly brought out.

The desire for local hospital accommodations expressed by about three-fourths of the population is in itself a most encouraging sign. It indicates the growing recognition of the value of medical and hospital service, but the demands of modern hospital service are so exacting that economic administration is possible only with large units. The overhead charges for heat, laundry, kitchens, elevators, operating suites, laboratories, x-ray departments, administrative and nursing offices together with the lay personnel are out of all proportion in the small as compared with the large hospital.

The report deals with the advisability of building a ten to twenty-five bed hospital for a typical Massachusetts town of twenty-five hundred population, situated within twenty miles of Boston. It points out that a twenty-five bed hospital could be built at a cost of $100,000 to $150,000. The report specifically states that considerations of staff, nurses, and lay personnel are omitted. It is not clearly stated that the facilities offered by any such small hospital are not equal to those offered by larger institutions. But one sentence in the report indicates a recognition by at least a portion of the public that the service rendered by a small hospital is almost necessarily limited in some particulars. Those desiring private rooms do not desire to patronize the small local hospital in the same ratio as do those desiring the less expensive ward accommodations. In other words there is a greater demand in the small town for the service rendered by what in England is called a nursing home than there is for the more complete hospital service. Unfortunately demands for standardization have not taken sufficient account of these different needs. Both the hospitals and the nursing homes should be of high grade, but they should be measured by totally different standards.

There are many factors which determine the need of a well equipped general hospital in any community. Chief among these is the population to be served not only in the town itself but in the whole community. And next in importance is the ease of access to other larger centres.

A county seat of eight thousand people may demand a well equipped hospital, while a suburban town of fifteen thousand may much better merge with other communities in securing hospital service.

If the physicians and the public in smaller communities desire more simple nursing home service there are many reasons why this concentration of work is desirable. But it is always essential that the accommodations provided and the service rendered be of high grade.

Many communities which have built well equipped hospitals of high grade are suffering, temporarily perhaps, from the overhead expenses incident to relatively small bed capacity and infrequent peak load. Union with other neighboring towns, the growth of population and the constantly increasing tendency of the public to avail themselves of hospital service may in time overcome this difficulty.

One factor in favor of the concentration of medical work in hospitals can not be shown by statistics, but is vaguely sensed by the public. Better work is done by the individual physician when he works alongside his fellows always subject to suggestion, question, and perhaps criticism. The lone worker is at a disadvantage. The work of the physician and surgeon may be centralized with great advantages to all. But an adequate recognition of the fact that first class hospital facilities are not always needed, and that really high grade nursing home facilities would be a great boon in both small and large

communities would help in solving some local problems. In an area as densely populated as is Massachusetts and most of New England, first class hospital facilities should be accessible to all. It is always as easy to transfer a patient from a nursing home as from a private residence to a hospital if the need arises. Good nursing homes might well be established as auxiliaries to hospitals when the necessity for a high grade hospital does not seem to be imperative.

AN UNREASONABLE TAX

One of the most unreasonable increases in the tariff bill is that which increases from 45 per cent. to 70 per cent. the tariff on surgical instruments.

It may be that the proponents of the bill believe that surgeons are so prosperous that they can afford to meet this added cost. If so there is a singular lack of understanding of the facts because a large part of the cost of surgical instruments falls on hospitals and a large proportion of the service rendered by hospitals is to the less well favored classes. It has been estimated that hospitals have to buy over fifty per cent. of the surgical instruments used in this country. A considerable proportion of steel surgical instruments are not made in this country and the tariff on these does not protect local manufacturers to any great extent. The steel instrument industry is a highly specialized occupation requiring expert workmen and expensive mechanical equipment and the products are turned out at lower cost in European countries than is possible in the United States.

Since the higher cost bears heavily on hospitals many of which are supported by philanthropy, it is difficult to understand the action of Congress in putting this larger burden on articles which are indispensable in treating the sick. If members of Congress were aiming at the medical profession there is still no apparent reason for this increase for doctors pay the established rate on income and in addition special taxes. There seems to be little recognition of the great amount of unpaid service rendered by the members of the medical profession to the people at large, which might warrant some consideration in matters of taxation or tariff.

The government was especially tardy in allowing credit for expense of attendance at medical meetings.

If the annual reregistration fee becomes general, there will be one more contribution by the profession for revenue to provide the State with funds to be more or less used in investigations and prosecutions.

Protests have been filed in Washington against this tariff increase, but a general expression of disapproval to members of Congress by constituents will add weight to what has been done.

A SHOCK PROOF X-RAY APPARATUS

One of the large manufacturers of electrical machines has invented a new type of x-ray apparatus which is completely insulated in oil and with all high voltage wires eliminated.

The Coolidge tube is concealed in an aluminum container filled with oil with an adjustable slit through which the rays are projected.

The usual noises and other evidences of electrical energy are not appreciable to the bystander thereby eliminating the effect of the use of the usual apparatus on susceptible persons.

If the claims submitted by the manufacturers prove to be all that have been set forth, a new era of safety will ensue which will prevent the hitherto serious danger to patients and operators connected with x-ray exposure. It may be that suits for damage due to x-ray burns will be a matter of history.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Shattuck, George Cheever. A.B., A.M., (Honorary) M.D. Harvard, 1905. Assistant Professor of Tropical Medicine, Harvard Medical School. Junior Visiting Physician in Charge of Service for Tropical Diseases, Boston City Hospital. Consultant in Tropical Diseases, Massachusetts General Hospital. Attending Specialist in Tropical Medicine to United States Marine Hospital, Chelsea. His subject is: "The Interdependence of Tropical Medicine and General Medicine." Page 1229. Address: 520 Commonwealth Avenue, Boston.

Morse, John Lovett. A.M., M.D. Harvard, 1891. Professor of Pediatrics Emeritus, Harvard Medical School. Consulting Physician at Children's Hospital, Infants' Hospital, and Beth Israel Hospital. Member, New England Pediatric Society, American Pediatric Society, Association of American Physicians and Boston Obstetrical Society. His subject is: "The Problem of the Control of Infantile Paralysis." Page 1236. Address: 483 Beacon Street, Boston.

Moore, George A. S.B., M.D., Harvard 1911. F.A.C.S. Surgeon, The Moore Hospital. Consulting Surgeon, Bridgewater State Hospital, St. Luke's Hospital, Middleboro, Mass. His subject is: "Pelvic Exclusion." Page 1245. Address: 167 Newbury Street, Brockton, Mass.

Chapin, William A. R. M.D. University of Vermont, 1915. Voluntary Surgical Assistant, Springfield Hospital. His subject is: "Experiences With Spinal Anesthesia." Page 1252. Address: 121 Chestnut Street, Springfield, Mass.

THE BOSTON MEDICAL LIBRARY

DEDICATION OF THE OSLER LIBRARY AT McGILL UNIVERSITY*

THE dedication of the Osler Library at McGill University on May 29th. provided the setting for the assemblage of a group of Sir William's devoted admirers, and friends of the University to which he had donated his priceless collection. It was a very colorful procession,—as H. S. Osler phrased it in referring to the way the academic regalia of the invited guests outshone the varied costumes of the ladies,—which formed in the Medical Faculty Room at McGill and proceeded to the Assembly Hall where they occupied the platform and chairs on either side, to the number of about forty. Among those present were the four editors of the recently issued catalogue of the Library, Dr. W. W. Francis the present Librarian, Dr. F. A. Malloch, of the New York Academy of Medicine, R. H. Hill of the Bodleian Library, Oxford, England and L. L. Mackall of Savannah, Georgia. Several members of Lady Osler's family were present.

E. W. Beatty, Chancellor of the University presided and there were with him on the platform Dean Martin of the Medical Department, Dean Carlisle of the University, the Rt. Hon. W. L. MacKensie King, Sir Arthur Currie, Principal, H. S. Osler, Esq. K. C., Dr. Harvey Cushing and others. The exercises were opened with an invocation by Dean Carlisle after which the Dean of the Medical Faculty, Dr. C. F. Martin, read a few of the many telegrams and letters from all parts of the world from those who would have been present had it been possible for them to do so. Among them were notes from Prof. Nager of Zurich, from Christ Church, Oxford, from the Bodleian Library and from the Osler Club of London.

A short quotation from Sir William himself, read by Dr. W. W. Francis, who recounted the manner in which this collection of 7668 books was accumulated, showed how Sir William's loyalty to his native country and Alma Mater led him to give his books to McGill: "Though a wanderer living away from Montreal for more than half my life, I have never forgotten the early associations. The formative years were there with the strong ties of head and heart. As a young, untried man, McGill offered me an opportunity to teach and to work; but what is more the members of the medical faculty adopted me, bore with vagaries and aggressiveness and often gave practical expressions of sympathy with schemes that were costly and of doubtful utility. That they believed in me helped to a belief in myself, an important asset for a young man, but better had by nurture than by nature. Alma Mater, too, counts for much, and as a graduate of McGill I am proud of her record. Had I not seen the day of small things? Did I not graduate in the days of the Cote street school? I may quote Fuller's sentiment: 'He conceived himself to hear his Mother College always speaking to him in the language of Joseph to Pharaoh's butler, "But think on me, I pray thee, when it shall be well with thee".' Then there is the natural feeling of loyalty to the country of one's birth and breeding. These are the considerations which decided me to leave the special collection to Montreal." Among these books are one hundred and fifty Medical Incunabula, which, added to the thirty now possessed by McGill, probably makes this Library unusually rich in books published prior to 1501.

Dr. W. S. Thayer, of Johns Hopkins University, gave the principal address of the afternoon. It was an admirably appreciative analysis of Osler's character and personality closing with an apotheosis upon the value of books as it might have been expressed could these very books have spoken. Lady Osler's part in completing the work, the fulfillment of, which it was destined that she should not see, was touchingly referred to in his address. It had been Lady Osler's hope that she herself might be able to make the presentation. Loyalty, one of Sir William's strong characteristics, was referred to by more than one of the speakers as being the motive above all others that actuated him in wishing that his ashes and his most cherished possessions should come back to the place where he felt he had received so large a part of the inspiration of his life. H. S. Osler, Esq. K. C. a nephew of Sir William, acted as the representative of his family in formally tendering the gift to McGill University and this was accepted in an appreciative address by Sir Arthur Currie. The benediction by Dean Carlisle closed the formal exercises and the assemblage adjourned to the Library and Museum where the books and many pathological specimens prepared by Dr. Osler's own hands had been classified and arranged for the Museum. Osler's early scientific interests led him into pathology, parasitology and other fields where the microscope was the instrument of precision.

The books are housed in a room set apart for the purpose where ideal conditions for their use may be obtained and the place seemed to be redolent of the spirit of the donor. A copy of the Vernon plaque occupies a panel in the wall and covers the ashes of the donor. The catalogue, a large volume issued by the Oxford University Press, has been completed and the volumes are arranged upon the shelves in accordance with Sir William's idea of how most to enjoy the use of a Library. After the inspection was over the guests drifted out upon the University campus where a lawn party was in progress and opportunity for a social gathering completed the very perfect celebration of a significant event.

*May 29, 1929.

MISCELLANY

AN ABRIDGED REVIEW OF THE ACTIVITIES OF THE ROCKEFELLER FOUNDATION

A review of the work of the Rockefeller Foundation in 1928, written by its president, George E. Vincent, will be published in a few days. In addition to recounting the activities of the past year, the Review tells of plans for extending the scope of the Foundation's work under a new régime going into effect at the beginning of the year 1929, and also summarizes briefly the achievements of the organization during the first sixteen years of its existence.

THE WORK IN 1928

During 1928 the Rockefeller Foundation continued its regular program of activities consisting chiefly in (1) promoting the development of medical knowledge by aiding schools of medicine, nursing, and hygiene in many parts of the world; (2) advancing the cause of public health by helping governments fight certain diseases and strengthen their local health services; and (3) carrying out an extensive fellowship program by which 800 men and women were enabled to pursue additional studies, chiefly in countries other than their own. In doing this work the Foundation disbursed from income and capital $21,690,738, of which $12,000,000 constituted an endowment fund for the new China Medical Board, Incorporated.

PLANS FOR EXPANSION

During the year plans were completed for a reorganization embodying as its main features the merging of the Rockefeller Foundation and the Laura Spelman Rockefeller Memorial into a new corporation to be known as the Rockefeller Foundation, and the extension of the scope of the new Foundation's activities to include work in the natural and social sciences and in the humanities. A China Medical Board with independent self-perpetuating trustees to receive the lands and buildings of the Peking Union Medical College together with an endowment fund and annual appropriations was also created.

THE RECORD OF SIXTEEN YEARS

Since May 22, 1913, the Foundation has paid out from income and principal a total of $144,189,400. The emphasis has been on the training of doctors, health officers, and nurses, the creation or strengthening of institutions of medical or public health education, the building up of official health organizations, the promotion of field research, the demonstration of new methods. The World War called for exceptional aid to medical services, social work in army camps, and emergency relief, notably for children. For these purposes $22,000,000 was appropriated.

Temporary antihookworm campaigns in the United States and in many other countries have been broadened into permanent official rural health organizations. Malaria has been studied more fully and methods of control worked out at home and abroad. Yellow fever has been forced to retreat from Mexico and Central America and from Northern South America, until it is now found only in Brazil and West Africa. A wartime antituberculosis organization built up with Foundation aid in France has been wholly taken over by the French and is being incorporated into a general public health service.

Various schools and institutes of public health have been created or extended with Foundation funds. For the strengthening of influential medical schools in many parts of the world from London to Singapore, the Foundation has expended about $29,000,000. This does not include building, equipment, and support of the Peking Union Medical College and aid to hospitals and the premedical sciences in China.

Up to December 31, 1928, fellowships had been granted to 3,187 representatives of fifty-eight countries at a total cost of $4,908,743. The international significance of these fellowships may be inferred from the fact that 1,383 of the total fellows pursued their studies in countries other than their own.

DELEGATES TO THE INTERNATIONAL HOSPITAL CONGRESS

Sixty-one doctors, architects and leading administrators of hospitals from twenty-eight countries, on their way to the International Hospital Congress, which will be held at Atlantic City, June 13-21, stopped off to visit Boston, June 7 on a tour which will take them to Montreal, Niagara Falls, Washington and Baltimore before the opening session of the convention called to consider the problems of the "democracy of illness."

Under escort of Dr. S. S. Goldwater of New York City, chairman of the American committee, and Dr. W. H. Conley of the Department of Hospitals of New York City and representing the board of trustees of the American Hospital Association, the distinguished visitors arrived from New York by the Eastern Steamship Lines steamer in the morning. Led by Dr. Joseph B. Howland, superintendent of the Peter Bent Brigham Hospital, the party visited several hospitals and before luncheon called upon Governor Allen and Mayor Nichols. Many of them had an opportunity to review the high school cadets' parade.

Among those who called upon the governor and mayor and the countries from which they came, were:

Argentine, Dr. Julio Eccheverria; Austria, Professor J. Tandler; Belgium, Dr. Rene Sand, Professor Dr. Joseph Sebrechts; Cuba, Dr. Jose E. Lopez-Silvero, Dr. Francisco M. Fernandez; Czechoslovakia, Dr. Albert; Denmark, K. M. Nielsen, H. F. Oligaard; England, W. H. Harper, J. Rowse Mitchell, Arthur Griffiths, Godfrey H. Hamilton, Captain W. Cockburn; France, J. E. Brizon, president of the French Hospital Association; Andre Couachon, secretary; Dr. Marcel Martiny, Dr. Therese Martiny, M. Pierre Berthelot, Mlle. Chaptal; Germany, Professor Dr. Julius Grober, Dr. Joseph Wirth, Mr. Lang, Hermann Distel, Dr. F. M. Patrzek; Guatemala, Dr. Marion J. Wunderlich; Holland, Dr. W. H. Mansholt, Dr. A. Burgerhout, Dr. H. van Wely, Mrs. H. van Wely, Dr. J. L. C. Wortman, Dr. R. J. Wolvius, Dr. J. F. J. ten Berge, Dr. J. Wessels, Dr. L. A. M. v. d. Speks, Ir. H. Hoekstra; Hungary, Dr. Aladar von Soos; New Zealand, Miss McKenny; Poland, Dr. Juljan Slaski, Mr. W. Borawski; Spain, Dr. W. Lopez-Albo, Dr. Eugenio R. Pasqual; Sweden, Prof. Einar S. Key, Dr. H. Ahlblom, Miss Elsa Thorling, Miss Ida Carlson, Ernest C. Westman; Switzerland, Dr. Hans Frey, Miss Marianne Riggenbach; Union of South Africa, Dr. R. T. W. Charlton; Uruguay, Dr. Eduardo

B. Acevedo; Scotland, Dr. J. P. Kinlock, commissioner of health; Irish Free State, Col. J. V. Forres; Italy, Dr. Giuseppi Micucci; Tripoli, Dr. Giovanni Pallotti; Finland, Dr. Edvard J. Horelli, Baron Fabian Langenskoid, Dr. Ludbig J. Lindstrom, Eino Forsman; Australia, Mr. Leighton, Mr. McWhae, Miss McKenney; Norway, Dr. Karl W. Wefring, Miss Bergljot Larsson; Costa Rica, Dr. Solon Nunez.

The visitors were taken for a brief inspection of Harvard Medical School and the hospitals and other allied institutions in Boston.—*Boston Transcript.*

THE SHIP'S MEDICINE CHEST AND FIRST AID AT SEA

The medical handbook for merchant seamen, first issued in 1881, has been amplified and reprinted, dedicated to the American merchant seamen, "at whose behest the marine hospitals were first established in the year 1798, and whose history as a patient of the Public Health Service is a record of the progress of medicine and sanitation in the United States."

Surgeon General H. S. Cumming believes that the book will be even more useful than heretofore because recently ship's officers, as a condition to obtaining their licenses, have been required to know medical first-aid principles. The growing custom of ships at sea to radio for medical advice from marine hospitals and other relief stations of the Public Health Service has also made it necessary to standardize medical equipment. This matter is covered in the handbook, together with valuable advice useful in such emergencies as poisoning, bleeding, suffocation, fractures, dislocations, burns, electric shock, fits, wounds, etc., which not infrequently occur on the 10,000 merchant vessels registered by the Department of Commerce, the great majority of which do not carry medical officers. A copy of "Ship's Medicine Chest and First Aid at Sea" may be obtained by the master of any documented American merchant vessel upon his request to the Public Health Service.—*United States Public Health Service.*

THE CLINICAL CONGRESS OF THE AMERICAN COLLEGE OF SURGEONS

Dr. Franklin Martin, President of the Clinical Congress of the American College of Surgeons, has issued the following announcement:

The surgeons of Chicago are planning a wonderfully interesting program of clinics for the nineteenth annual Clinical Congress of the American College of Surgeons in this city October 14-18, and are keenly interested in providing a complete showing of Chicago's clinical facilities. The program will be comprehensive and varied—all branches of surgery will be represented therein. Clinics will begin at 2 o'clock Monday afternoon and continue throughout the mornings and afternoons of the following four days.

Since the last Clinical Congress in Chicago (1923) clinical facilities in this city have been markedly increased through the erection of several new hospitals and the enlargement of some of the older institutions. Also, during recent years several new hotels have been built, including the Stevens with its 3000 guest rooms, so that there are first-class hotel accommodations for all who wish to attend. General headquarters for the Congress will be established at the Stevens Hotel where there are ample facilities for all of the College activities, including meeting places for the scientific sessions, hospital conferences, committee meetings, etc.

Attractive programs for five evening sessions have been outlined by the Executive Committee. At the Presidential Meeting on Monday evening the President-Elect, Surgeon-General Merritte W. Ireland, will be inaugurated, and on the same evening the Murphy Oration in Surgery will be delivered by Professor D. P. D. Wilkie of the University of Edinburgh. Other distinguished visitors will participate in the scientific programs.

Bearing in mind the great popularity of these clinical meetings, registration in advance will be necessary as attendance will be limited to a number that can be comfortably accommodated at the clinics.

Reduced fares on the certificate plan have been authorized by the railways of the United States and Canada—the fare for the round trip being one and one-half times the regular one-way fare.

HEALTH STANDARDS FOR SUMMER CAMPS

The Massachusetts Commissioner of Health has sent to local boards of health and camp directors directions for approved health standards for summer camps.

These standards of sanitation have been approved by the Massachusetts Association of Boards of Health and the New England Camp Directors Association. All persons who have any responsibility with respect to the well-being of those occupying summer camps should secure a copy of these directions.

Careful adherence to the recommendations set forth will reduce the amount of illness among those returning from summer vacations. It has happened too often that the careless or ignorant vacationist has found that his search for recreation has led to illness which put him in bed for a period much longer than the time allotted for his holidays.

PROGRAM OF A CONFERENCE ON THE PREVENTION OF TUBERCULOSIS, TUESDAY, JUNE 18, 1929, LAKEVILLE STATE SANATORIUM, MIDDLEBORO

Presiding at the morning session: Dr. George H. Bigelow, Commissioner of Public Health.

10 A. M. "The Dispensary Clinic," Dr. Cleaveland Floyd, Chief Examiner Tuberculosis Clinics, Boston. Discussed by Dr. John M. Wise, Superintendent Sassaquin Sanatorium and Chief of Tuberculosis Clinic, New Bedford; Dr. Edmund B. Fitzgerald, Health Commissioner, Quincy; Mrs. Mary Magee, Director of Nursing, Brockton Visiting Nurse Association.

11 A. M. "The School as a Factor in the Prevention of Juvenile Tuberculosis," Dr. William O. Hewitt, Health Officer, Attleboro. Discussed by Dr. Henry A. Robinson, School Physician, Hingham; Dr. Ernest M. Morris, Health Commissioner, Fall River; Dr. John Holbrook Shaw, School Physician, Plymouth.

12 M. "The United States Veterans' Bureau Program," Dr. Ernest D. Hatch, Chief Respiratory Section, United States Veterans' Bureau.

Luncheon.

Presiding at the Afternoon Session, Dr. Richard P. MacKnight, State District Health Officer, The Southeastern District.

2 P. M. "The Part Industry May Play in the Early Diagnosis of Tuberculosis," Dr. Edward O. Otis, Honorary President Massachusetts Tuberculosis League, Inc. Discussed by Dr. Halstead G. Murray, Industrial Physician, Dennison Manufacturing Company, Framingham; Dr. Edward R. DeRoma, Industrial Physician, Walpole.

3 P. M. "Non-Pulmonary Tuberculosis" (Illustrated Clinical lecture), Dr. Leon A. Alley, Superintendent, Lakeville State Sanatorium.

IS OBESITY A CONDITION FOR WHICH TREATMENT CAN BE SCIENTIFICALLY PRESCRIBED WITHOUT A PERSONAL EXAMINATION BY A PHYSICIAN?

Treatment for obesity can *not* be scientifically and safely prescribed without a personal examination of the patient by a competent physician. It is essential that the cause of the excess deposit of fat be determined in order that suitable treatment may be prescribed.

There are two distinct groups of overweight persons.

First, there are those who eat more food than they need and who are not sufficiently active to use up this surplus fat through exercise. This group constitutes the greater number of overweight persons. The safe and sane method of control under such conditions consists of diet and exercise.

The second group is composed of those suffering from glandular obesity. Each case requires individual study and intelligent diagnosis and treatment. Reducing remedies may be administered by physicians, but only after careful diagnosis and under personal observation and supervision.

It is conceded that persons who are definitely overeating and are gaining in weight due to such overeating could with a reasonable degree of safety reduce their own diet without personal examination or supervision of a physician. Experts point out, however, that it is very desirable for any reduction in diet to be made rationally in order to insure proper balance. A dietitian can advise a diet that will be low in fat making material, or a dietitian can arrange a combination of foods which will be nutritious and not have tendencies toward the deposit of excess fat, but only a competent physician can determine what is technically wrong with the human anatomy as regards this disturbed functioning and depositing of excess fat or its safe reduction.

Obesity can be neither safely nor scientifically treated except under the supervision of a person with an intimate knowledge of the human body and its processes—that is a physician.

Here again, a person who is definitely overeating can reduce his own diet with reasonable safety, but it is important that the reduction be made rationally in order to insure a balanced diet. Under any reducing regime, secondary disease conditions may arise, which, if unrecognized, may lead to permanent disability, or even death.

SHOULD A PERSON UNDERGOING TREATMENT FOR OBESITY BE EXAMINED PERIODICALLY BY A PHYSICIAN?

Periodical examinations by a physician are recommended because it is desirable that the patient's condition be carefully watched. The treatment of obesity is not simple. In difficult cases various problems arise which can be met in no other way except through periodical examinations. Some treatments for obesity carry with them a definite risk to the heart and kidneys and these organs need careful watching. We are advised that a number of obese persons have diabetes often unsuspected by them. It is also possible for the beginning of tuberculosis of the lungs to exist in a fat person and to be aggravated by reducing treatment. The diet also must provide certain essential materials during the period of reducing and the medical examiner must know whether the health is endangered by lack of these and general under-nutrition.

ARE EXERCISE AND DIET NECESSARY FOR A SAFE AND SCIENTIFIC TREATMENT OF OBESITY?

The treatment of obesity is primarily dependent upon diet and exercise. Most cases of obesity arise from the eating of more food than is actually consumed, the surplus being stored as fat. The removal of this surplus can be accomplished only by reducing the intake or increasing the consumption. These measures are synonymous with diet and exercise, which, therefore, are indispensable.

Each case of obesity is a law unto itself. The amount of exercise and the amount of diet can be scientifically determined only on the basis of an intimate and expert knowledge of the individual under treatment.

DO EXTERNAL REMEDIES, SUCH AS FOAM BATHS, BATH SALTS, SOAPS, CREAMS, ETC., HAVE ANY MERIT AS FAT REDUCING AGENTS?

Medical experts state that soaps, creams, bath salts and other external applications can have no possible influence in permanently reducing obesity. There is nothing that, put in the bath water, will reduce weight. Hot baths in themselves have some weight reducing power because they speed up metabolism, and cause a reduction of weight by sweating out water from the body, but this weight is quickly replaced unless the diet is reduced, so that the actual weight remains unchanged. The addition of foreign substance to the bath water is wholly without any scientific basis.

Rubbing and massaging will reduce weight to a limited degree, but any creams or pastes that are used in this treatment serve only as lubricants and do not have any weight reducing qualities in themselves.

ARE LAXATIVE TABLETS EFFECTIVE AS A HOME TREATMENT FOR OBESITY?

The use of laxatives as a treatment for obesity is considered unscientific. Laxatives may create an apparent reduction of weight to such an extent as they hurry the food through the intestinal tract before it can be properly assimilated.

Instead of over-stimulating the intestinal tract unnaturally for the purpose of hurrying food through before it can be wholly utilized it is obviously more rational to eat less food and digest that which is eaten.

THE USE OF TABLETS CONTAINING DESICCATED THYROID FOR HOME TREATMENT.

The use of desiccated thyroid as a home treatment for obesity is fraught with danger. So powerful a

substance as thyroid has no place in the legitimate field of home remedies. Medical experts state that thyroid preparations are a valuable adjunct to the treatment of obesity in the particular cases where the patient is suffering from thyroid deficiency, but they would use it only after careful diagnosis and under their personal observation and supervision.

The majority of fat people do not suffer from an under-active thyroid gland and the indiscriminate sale of remedies containing this product for self medication is contrary to the public interest.—*Bulletin National Better Business Bureau, computed after consultation with Specialists.*

MATERNAL LOVE

Recently in Atlantic City, a Mrs. Tillie Anapol's baby son was hospitalized for diphtheria. She demanded to stay with him, but was of course ejected. She thereupon got a ladder, placed it against a window of the isolation ward, spent five nights and days on the ladder top, soothing, encouraging, comforting her child. Press photographers, marveling at such devotion, came to take her picture, drove her away.—*Time.*

CORRESPONDENCE

AN INVESTIGATION OF THE NEED OF REGULATING THE PRACTICE OF BARBERING

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

June 6, 1929.

NEW ENGLAND JOURNAL OF MEDICINE,
Gentlemen:

At the direction of the Legislature we are investigating the need as a health measure of regulating the practice of barbering within the Commonwealth. We are appointing an advisory committee of dermatologists, and through inspection of barber shops, inquiry through boards of health and hospitals, and through an appeal to the general public we are attempting to find facts in regard to the matter. Dr. N. E. Newbury, formerly Health Officer of Scranton, Pennsylvania, has charge of this study. We would appreciate it very much if any of your readers will inform us of their opinion in regard to the spread of communicable disease through barber shops, giving their general opinion and any experience in this matter and also citing specific instances of disease so spread.

Yours truly,
GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

MUST A DOCTOR TAKE OUT TWO NARCOTIC REGISTRATIONS

282 So. Main Street, Haverhill, Mass.,
June 9, 1929.

Editor N. E. JOURNAL OF MEDICINE,
Dear Sir:

This letter is to find out if possible where the Medical Profession stands today in regard to the narcotic law. Recently a brother practitioner in N. H. was arrested and tried for a misunderstanding and misinterpretation by one of the enforcement agents. I have had occasion to open another office in this city. I do not dispense or keep any narcotics at my old office as I use it only one hr. a day for consultations. However I went to the Boston office of the Federal Narcotic Agent, and he informed me that I must register twice and pay two taxes even if I did not dispense but only prescribed narcotics. I only took one permit for my main office and I find the following,

"Article 22. A practitioner maintaining an office where he is duly registered with the collector of the district in which the office is located, and where his complete stock of narcotic drugs and all narcotic records are kept, may dispense or prescribe such drugs in other districts in which he may be lawfully engaged in the practice of his profession, within the U. S. in the course of his professional practice only, without incurring additional tax liability."

Now if a patient comes to my old office where I am conducting a branch office can I write, using my new registry no., for a narcotic? The agent says "No you can't even prescribe for, or inject a narcotic." Must I go outside to write? Have I not a permit to prescribe anywhere in the U. S. in the practise of my profession? On account of so many different interpretations of the law a Dr. is more liable to arrest than a pedlar of narcotics, at least he must prove himself innocent even if not guilty.

Yours Resp.,
P. NETTLE, M.D.

RECENT DEATH

BORDEN—DR. GEORGE EDWARD BORDEN, the efficient Secretary of the Bristol South District Medical Society, died suddenly of heart disease in his office in Fall River, June 8, 1929, at the age of 45.

Dr. Borden was graduated from the Long Island College Hospital, Brooklyn in 1905, settled in Fall River the following year and joined the State medical society. He practiced nose and throat work and succeeded Dr. A. J. Abbe of New Bedford when he resigned as secretary of the Bristol South District. He will be much missed by the members of that district as he had unusual ability in the discharge of the varied duties of secretary.

Dr. Borden is survived by his widow, Mrs. Ina Stuart Borden, and by two daughters.

NEWS ITEMS

BILL FOR TUBERCULOSIS AID—The bill authorizing the making of contracts for supplying hospital facilities to persons suffering with tuberculosis in the hospital district comprising Chelsea, Revere, and Winthrop was signed June 3 inst. by Governor Allen.

FORANTI GALLIAZZO SENTENCED TO JAIL—The police of Cambridge reported that there appeared to be evidence that Foranti Galliazzo was engaged in the practice of medicine when they were called to his office on May 19 ult. as shown by what appeared to be medicine in his room. This evidence was submitted at the trial of Galliazzo before Judge Stone in the East Cambridge Court June 3 inst. Galliazzo was found guilty of practicing medicine without having been registered and was sentenced to the House

of Correction for one month and was fined $200. The defendant appealed and was held under bonds of $2000.

THE LARGEST HOSPITAL FOR THE TREATMENT OF MENTAL DISEASES—New York is building a hospital on a four hundred acre lot about two miles from Brentwood for the treatment of mental diseases. This will be known as the Pilgrim State Hospital in honor of Dr. Charles Winfield Pilgrim the specialist in mental diseases. This hospital will cost $30,000,000 and will accommodate 10,000 patients and will be the largest hospital for the insane in the world. When completed there will be about eighty buildings in the group.

It has been estimated that unless the State of New York carries on its building program for hospitals, there will be, by 1936, twenty thousand more patients than there would be beds for them. It is further estimated that there is one mental defective in every five families in the State of New York and that the only way to avoid expansion of hospitals would be to limit the growth of the State.

Dr. Alexander A. Levi announces that he has opened an office for the practice of medicine at 114 Trowbridge Street (near Harvard Square), Cambridge, Mass.

NOTICES

THE SAMUEL D. GROSS PRIZE

FIFTEEN HUNDRED DOLLARS—ESSAYS WILL BE RECEIVED FOR THE PRIZE UNTIL JANUARY 1, 1930

The conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the competitor who receives the prize shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery, and that on the title page it shall be stated that to the essay was awarded the Samuel D. Gross Prize of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 19 S. 22d St., Philadelphia," on or before January 1, 1930.

Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The Committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The Committee reserves the right to make no awards if the essays submitted are not considered worthy of the prize.

WILLIAM J. TAYLOR, M.D.,
JOHN H. JOPSON, M.D.,
EDWARD B. HODGE, M.D.,
Trustees.

Philadelphia Academy of Surgery
Philadelphia, May 20, 1929.

ANNUAL NARCOTIC REGISTRATION RETURNS MUST BE FILED WITH THE COLLECTOR BY JULY 1 OR PENALTY ATTACHES

Notices have been sent to physicians as follows:

Enclosed herewith are the forms to be used in applying for reregistry under the Harrison Narcotic Law, as amended, for the year beginning July 1, 1929. If you desire to continue your present narcotic registration, these forms, properly executed, with the proper amount of tax or taxes, must be returned to this office so that they will reach here on or before July 1, 1929, or penalty will attach.

Persons registering in class 1, 2, 3, or 4, are required to register in class 5 also if they wish to dispense or handle exempt narcotic preparations. No additional payment of tax is necessary, but care should be taken to see that the class 5 block on the application form is checked.

The inventory on Form 713 of narcotics on hand must be prepared under oath or affirmation, in duplicate, the *original* of which is to kept on file by the maker, and the *duplicate* forwarded to the Collector. No inventory on this form is required for class 1 and 2. AN INVENTORY MUST BE MADE FOR CLASS 5 IF REGISTRY IS DESIRED IN THAT CLASS. The inventory for class 5 refers only to taxable narcotic drugs which might be set aside for use for manufacturing exempt preparations, and does not require the listing of ready-made preparations and remedies classed as exempt narcotic preparations. IN MOST INSTANCES NO TAXABLE NARCOTIC DRUGS ARE ON HAND IN CLASS 5. IF SUCH IS THE CASE, THE INVENTORY USED FOR REGISTRATION IN ONE OF THE HIGHER CLASSES MAY ALSO BE USED FOR CLASS 5, PROVIDED A NOTATION—"NO TAXABLE DRUGS IN CLASS 5"—IS PLACED CONSPICUOUSLY ON BOTH THE ORIGINAL AND DUPLICATE COPIES OF THE INVENTORY.

Please read the forms carefully before executing them, so that your reregistration may be properly accomplished, and to avoid payment of penalty, return all forms with proper remittance in the form of *certified check*, postal money order, or cash, *not later than July 1, 1929.*

If there has been a change in address from that at

which you registered last year, please make notation on application, and show date of removal.

In the event that registration is not contemplated for any reason, this office should be so advised prior to July 1st.

THOMAS W. WHITE, *Collector.*

INTERNATIONAL MEDICAL POSTGRADUATE COURSES IN BERLIN

These courses are arranged with the help of the medical faculty of the University by the Lecturers' Association for medical continuation courses and the Kaiserin Friedrich-Haus. Part of the courses take place permanently, part only in October 1929 and March 1930.

I. PERMANENT COURSES

a) of monthly and semi-monthly duration dealing with all kinds of branches of medicine.

b) Courses as guest-assistants in clinics, hospitals and laboratories during 2 to 3 months and longer for gentlemen desiring to do practical work under systematic supervision.

II. COURSES IN OCTOBER 1929

1. Group course: "Progress in internal medicine with special regard to stomach and intestinal diseases" (from Oct. 1st-12th) fee RM 75.—

2. Course for neurology, psychiatry and psychology (from Oct. 14th-19th) fee RM 50.—

3. Postgraduate course on the domain of children's diseases (from Oct. 14th-26th) fee RM 100.—

4. Course dealing with the chemical and physical foundation of medicine (from Oct. 21st-26th) fee RM 50.—

5. Postgraduate course for throat,- nose- and ear-specialists (from Oct. 7th-19th, relatively 26th) fee RM 100.—

6. Single courses on all special fields of medical science including practical work.

III. COURSES IN MARCH 1930

For March 1930 the following courses are contemplated:

A course on the different branches of internal medicine.

A course on the progress in the domain of surgery.

A course on skin and venereal diseases.

An x-ray course.

A course on obstetrics and gynaecology.

The courses are held in German, but numerous professors are able to lecture in the English, French and Spanish languages.

The information bureau of the Kaiserin Friedrich-Haus für das ärztliche Fortbildungswesen, Berlin NW 6, Luisenplatz 2-4, instrumental in procuring suitable lodgings, gives information as to cost of stay, arranges the attendance in clinics at operations, etc., and, upon desire, sends detailed syllabuses.

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following competitive examination:

Bacteriologist

Applications for bacteriologist must be on file with the Civil Service Commission at Washington, D. C., not later than July 3.

The examination is to fill a vacancy in the United States Public Health Service, Honolulu, Hawaii.

The entrance salary is $4,000 a year. Higher-salaried positions are filled through promotion.

The duties are to carry on bacteriological investigations and research on matters pertaining to the public health.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the United States Civil Service Board of Examiners at the post office or custom-house in any city.

REPORTS AND NOTICES OF MEETINGS

HARVARD MEDICAL SCHOOL ALUMNI ASSOCIATION

The Alumni Association of the Harvard Medical School held its annual meeting at the School June 6, at noon.

The president, Dr. Truesdale, opened the meeting and the secretary reported on the progress that has been made in the three year period served by the retiring administration. In 1927 Vanderbilt Hall, the Medical School Dormitory, was opened; the Bulletin of the Association has been revived and established on a firm footing, and a graduate employment bureau has been started.

The treasurer's report showed an amazing and gratifying increase in the number of contributors from 566 in 1927-28 to 1340 in 1928-29. This has been almost entirely due to the energy and perseverance of the retiring treasurer, Dr. Albert A. Hornor.

Dr. Walter B. Cannon, acting dean of the Medical School, told of the advances made at the School during the last few years, emphasizing particularly certain much needed changes in the curriculum. He spoke of the benefits which will accrue to the School as a result of the coming enlargement of the Children's Hospital, and announced Mr. Harold Vanderbilt's latest gift which is to provide for the completion of Vanderbilt Hall, increasing its capacity from 225 to 450 students.

The Harvard University film was then shown, after which luncheon was served in Vanderbilt Hall

The following officers were elected to serve three years:

President: Dr. Francis M. Rackemann.
Secretary: Dr. James M. Faulkner.
Treasurer: Dr. Augustus Thorndike, Jr.
Councillors: Dr. Benjamin H. Alton, of Worcester (for one year); Dr. Robert Graves, of Concord, N. H.; Dr. Albert A. Hornor, of Boston.

Dr. William Breed, of Boston, was elected Association Secretary for one year.

STAFF MEETING OF THE MASSACHUSETTS HOMEOPATHIC HOSPITAL

The regular monthly meeting of the Staff of the Massachusetts Homeopathic Hospital was held at the Evans Memorial on Friday, May 31, 1929.

Dr. Morris Courtiss gave an analysis of a series of 900 Cesarean sections done in the Robinson Memorial Hospital during the past fifteen years. During that time the relation of the number of Cesareans to total deliveries has steadily increased and the maternal death rate has steadily decreased. Dr. Edwin W. Smith reported 400 cases of Low Cesarean section done by himself and his colleagues. He considers this superior to the classical Cesarean section and, among its advantages, spoke of lower incidence of infection, firmer scars and less tendency to adhesion formation.

Dr. Samuel R. Meaker gave a brief report of progress in Gynecology. He spoke of lipiodol injection of the uterus and tubes in the diagnosis of pelvic conditions and particularly in tubal occlusion. A study of the uterine index in a large series of cases indicates that this is a valuable means of estimating the degree of pelvic hypoplasia.

Dr. Max Davis reported his experience with the Ninhydrin flocculation test for the early diagnosis of pregnancy. He found results 100% accurate in negative tests and 95% accurate in all positive tests. Positive results were only 86% accurate in those cases in which there existed pelvic pathology.

A report was made by Dr. James C. Janney of experimental work to confirm the work reported on ovarian follicular hormone by R. T. Frank and coworkers. Results so far obtained are partially confirmatory and partially contradictory of those reported by Frank. Other lines of investigation which have come up in the process of this work are being followed out but have not yet reached a point of definite result.

BRISTOL COUNTY ORTHOPAEDIC CLUB

The Bristol County Orthopaedic Club held its first meeting May 28, 1929, Tuesday, at 8:15 P. M., in the Truesdale Clinic Library, 151 Rock Street, Fall River, Mass.

Election of the following officers took place: Dr. E. W. Burt, 101 School Street, New Bedford, Mass., President; Dr. C. C. McCreery, 151 Rock Street, Fall River, Mass., Vice-President; Dr. E. E. Hussey, 38 Rock Street, Fall River, Mass., Secretary and Treasurer.

The following additional members were present and assisted in the organization of the club, its by-laws and the character and plan of meetings: Doctors Horan, Pearce, and Webster, of New Bedford, Mass., Doctors Kaufman and Sullivan of Fall River, Mass.

The meetings will be held the last Tuesday of the month. The next meeting will be June 25, 1929, at St. Luke's Hospital, New Bedford, Mass.

Signed,
EARLE E. HUSSEY, *Secretary.*

THE CLINICAL CONGRESS OF THE NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN

The Clinical Congress of the New England Hospital for Women and Children, Dimock Street, Roxbury, will be held at the hospital at 8 P. M. Thursday, June 20. Puerperal Sepsis will be discussed. There will be a study of chest plates showing incipient tuberculosis as it has presented itself in the outpatient department. The conferences will be omitted in July and August.

ALICE H. BIGELOW, M.D., *Secretary.*

THE SOUTH END NEIGHBORHOOD MEDICAL CLUB

The next meeting of the South End Neighborhood Medical Club will be held at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, Tuesday, June 18, 1929, at 12 noon.

The speaker will be William D. Reid, M.D., Assistant Professor of Cardiology, Boston University School of Medicine. His subject will be "Digitalis Therapy."

All physicians are cordially invited to attend. The usual luncheon will be served at 1 o'clock.

SOCIETY MEETINGS

June 13—International Hospital Congress. Complete notice appears on page 212, issue of January 24.

June 18—The South End Neighborhood Club. Detailed notice appears above.

June 20—Clinical Congress of the New England Hospital for Women and Children. Complete notice appears elsewhere on this page.

July 8-9—American Association for the Study of Allergy Complete notice appears on page 906, issue of April 25.

July 9—American Heart Association. Scientific Meeting from 2 to 6 P. M. in the Auditorium of the Woman's Club, 448 Taylor Street, between 12th and 13th Streets, Portland, Oregon.

September 27-28—New England Surgical Society. Detailed notice appears on page 1227.

October 7-19—New York Academy of Medicine. Detailed notice appears on page 468, issue of February 28.

BOOK REVIEWS

Surgical Pathology. WILLIAM BOYD. 2nd Ed. 4°. 933 pp. Ill. and Plates. W. B. Saunders Co. Philadelphia. 1929. Price $11.00.

The first edition of Boyd's surgical pathology found such a hearty reception that it is perhaps needless to explain the scope of this work. It is an attempt to present pathology for the student and the practitioner from the practical standpoint of the clinic and the operating theatre. The text is well illustrated with 474 cuts and 15 colored plates. Although the general tone of the text is didactic the style is flowing and easy. There are many references to the literature but the actual bibliographies at the end of the chapters are small. This of course adds to the simplicity of the work but at the same time limits its usefulness as a reference book.

Extensive changes have been incorporated in the second edition bringing the material up to date, particularly in physiological pathology. In fact, the book departs in every page from old line microscopic and gross pathology to deal with dynamic changes and conditions.

A Surgical Diagnosis. J. LEWI DONHAUSER. 4°. 799 pp. Charts and Tables. D. Appleton & Co., N. Y. 1929.

Surgical diseases are arranged in an extensive 800-page catalogue. As the title would indicate, the different disorders are taken up almost entirely from the standpoint of differential diagnosis. Charts and tables have been frequently inserted to tabulate symptomatology in parallel columns. In his preface the author quotes Gould as saying: "We must cultivate the habit of looking behind symptoms and signs to their physical or physiological significance and not regard them as so many ultimate facts." Unfortunately a work of this type must perforce fail to correlate the symptoms and signs of disease with the pathology and physiology which lie behind them.

As a handbook of differential diagnosis the work is excellent. The material is readily accessible. The few illustrations found in the section on fractures are good, and the subject is presented in a practical manner for ready reference. If used as an outline to indicate subjects to be covered by reading elsewhere, the book will be quite useful to the average medical student.

Diseases of the Thyroid Gland. By ARTHUR E. HERTZLER, M.D. Second Edition, St. Louis. The C. V. Mosby Company. 1929. Price $7.50.

There have appeared within the last few years a number of books devoted to the subject of goitre, indicating the serious interest which is being taken in this special subject.

This book, as stated by the Author in its preface to the first edition, is particularly interesting inasmuch as it is the product of men working in a small hospital in a small community. This has the distinct advantage, as suggested by the Author, of work untrammeled by the opinion of others and of the additional fact that small communities permit close contact with patients in a follow-up way.

While the Author is an operating surgeon, his writings upon the subject of goitre have always been in a large measure from the point of view of the pathologist and so, much of the material in the first half of this book is presented from the gross and microscopic view point.

The book is concise, simple and quite obviously the result of a large experience and a deep interest in the subject of goitre. Space is not wasted in controversial discussion. The illustrations are good, as is the section on hospital management by Dr. Chesky.

Presenting as it does the views of a single individual dealing with goitre, largely from the pathologist's point of view, the book can hardly be recommended to the general physician, but is of interest to those who are dealing especially with the subject of goitre.

A Patient's Manual of Diabetes. By HERBERT W. MOXON. William Wood and Company. New York. 1929. Price $2.25.

There are certain diseases, of which diabetes is an example par excellence, where the patient is an integral part of the therapy. Such knowledge as the patient may be able to acquire regarding the dietetics and metabolism of diabetes will redound to his great advantage. Hence we have now a large number of manuals written, although this professes to be written "with both eyes upon the patient". Were we so fortunate as to encounter in this country at least, a degree of education and intelligence required to easily comprehend this book, it would fill a valuable niche in the clinic or office. In the reviewer's opinion the percentage of such patients is small indeed and we must resort to more didactic methods such as Joslin's group instruction.

One wonders just what the author regards as the glucose threshold value in the blood as .14, .16, and .18 per cent. are mentioned in various places (pages 47, 14, and 24). The book was writen by an Australian and to an American a weight of 7 stone 9 pounds, means very little. For a sterilizing and preserving agent for needles, we have found isopropyl alcohol as efficacious as absolute alcohol and cheaper. The section on insulin is clear and covers the ground very well.